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ABSTRACT

This task-based curriculum guide is intended to help secondary teachers provide relevant training for an entry-level job in carpentry. Introductory materials include background information on trade and industrial education and program goals and safety information. Descriptions follow of the construction trades program, vocational cooperative education, work experience/unpaid work experience, work experience and career exploration programs, and vocational work study. This job information is then provided: job titles and a task inventory for carpentry. Tasks are grouped under these five duties: framing the structure, trimming the exteriors, trimming the interiors--basic skills, trimming the interiors, and using employability skills. Duty tabs comprise the largest portion of the curriculum guide. Each task in the listing is presented in a one-page format that provides this information: duty, task, achievement indicators, criteria, tools and equipment, and resources. Other components of the curriculum guide include a student achievement record, a class achievement record, and a glossary of vocational terms. (YLB)

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MICHIGAN TRADE & INDUSTRIAL EDUCATION
CURRICULUM GUIDE

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INTRODUCTION

The Michigan Department of Education, Vocational-Technical Education Service, has adopted descriptions and codes for vocational-technical education programs found in the document entitled, "A Classification of Instructional Programs" (C.I.P.) National Center for Educational Statistics, February, 1981. This new coding system is required of all states in reporting data on all programs receiving funds under P.L. 94-482, the Vocational Education Amendments of 1976.

The current United States Office of Education (U.S.O.E.) coding system was discontinued at the conclusion of the 1981-82 school year. The 1982-83 school year is a transition year from the U.S.O.E. code system to the new C.I.P. Code system.

This Michigan Trade and Industrial Education Curriculum Guide uses the new C.I.P. program description code(s) and lists the entry level job titles associated with the occupational program area by the Dictionary of Occupational Titles (Fourth Edition, 1977), D.O.T. Code, and the Michigan Occupational Information System, (M.O.I.S.), Numerical Index code. NOTE: This information is located under Job Information with program description(s).

PROGRAM DEFINITIONS/GOALS

Vocational Education

The term "vocational education" means organized educational programs which are directly related to the preparation for paid or unpaid employment or for additional preparation for a career requiring other than a baccalaureate or advanced degree.[1]

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[1] The Education Amendments of 1976, Section 195(1), Public Law 94-482.

Goals of Vocational-Technical Education

(1) To provide persons with differing sex, age, racial/ethnic backgrounds, social-economic status, academic disadvantage, economic disadvantage, limited English speaking ability, physical and mental capabilities, and geographical location access to vocational-technical education training or retraining.

(2) To coordinate pre-vocational exploration, career guidance, and placement programs so that each student may make informed and realistic occupational choices and have access to quality placement programs.

(3) To provide all students with learning experiences which are realistic and sufficient in light of their occupational objective.

(4) To insure that all vocational-technical programs will be planned, monitored, and evaluated in light of actual or anticipated employment opportunities and the demand by students for programs related to their abilities and occupational objectives.

Trade and Industrial Education

A vocational education curriculum that includes programs for manufacturing, construction, mechanical service, public service, health service, technical, and fisheries occupations, that prepares a person for entry level employment, upgrading or retraining in a semiskilled or skilled trade, semiprofessional or technical occupation, not generally classified as Agriculture, Distributive, Business or Office, in the Health profession, or Consumer/Home Economics in nature.

NOTE: The occupational clusters found within the scope of trade and industrial education include skilled or semiskilled trade, craft, or occupations which directly relate to the designing, producing, processing, assembling, maintaining, servicing, or repairing of any manufactured product.

TRADE AND INDUSTRIAL EDUCATION STUDENT ORGANIZATION

VICA

The Vocational Industrial Clubs of America (VICA) is the national organization serving trade, industrial, technical, and health occupations students in the United States. VICA incorporates leadership, citizenship, and character development programs and activities into the skill training offered in America's schools and taught by men and women who have worked in the occupational areas in which they now instruct their students.

VICA emphasizes respect for the dignity of work, high standards in trade ethics, workmanship, scholarship, and safety. VICA promotes understanding of the free enterprise system and encourages development of patriotism through the practice of democracy within the club.

Competitive activities in the trade skills as well as areas such as public speaking, job interview, parliamentary procedure and safety are vital aspects of VICA's program.

TRADE AND INDUSTRIAL EDUCATION CURRICULUM GUIDE

This Michigan Trade and Industrial Education Curriculum Guide is the result of a project funded by the Michigan State Board of Education and the Michigan Department of Education, Vocational-Technical Education Service. The project is located at Michigan State University in the College of Agriculture and Natural Resources' Education Institute (ANREI) and is known as the Curriculum Resource Team.

The project is directed by Dr. Chris M. Olson and Ms. Carol E. Culpepper, Faculty Specialist, Curriculum Resource Team Coordinators. They were responsible for developing the curriculum format and working with a task force leader and committee of individuals from business, industry, and education to ensure the quality of the curriculum. The development of this curriculum was monitored by Melvin France, Secondary Trade and Industrial Education Supervisor.

The names of the occupational task force leader(s) committee members, secretaries, and other support staff are acknowledged after this Introduction.

The occupational program area(s) selected for curriculum development are based on a Vocational-Technical Education Service prioritized program ranking based on employment demand, State average percent of placement, reimbursed enrollments, the number of programs, and entry level wages within the State of Michigan.

This curriculum guide was developed from the results of a statewide survey and job analysis of incumbent workers in the related occupational areas.

The curriculum guide is representative of the occupational job duty categories which list major activities and tasks performed on an entry level job. The curriculum guide contains a resource list and criteria statements which indicate the minimum standards of performance accepted as evidence of competence in completion of the task by business and industry. This is a task-based curriculum guide which helps a teacher develop a classroom management system where students learn by doing. It is based on task analysis and reflects the skills, knowledge, and attitudes that employers expect incumbent workers to possess.

The curriculum is linked to the labor market, helps the instructor open communication channels with business and industry, and manage classroom instruction where students learn "Need-to-Know" instead of "Nice-to-Know" facts.

This curriculum is adaptable for special needs/handicapped students, helps to validate the program, prepares students for entry level jobs and helps students to make career choices related to job placement.

It is the intent by all those involved in the development of this curriculum guide that it be used to provide relevant training or retraining for employment in the world of work.

The secondary occupational programs/courses in Michigan should meet the following minimum standards to assure soundness and quality of instruction:

(1) The program of instruction must be based on a consideration of the skills and knowledge required in the occupation for which the

instruction is being provided, and includes a planned logical sequence for those essentials of education or experience deemed necessary for the individual to meet an occupational objective.

(2) The program of instruction must be developed and conducted in consultation with a Local Advisory Council/Committee which has an appropriate representation of both sexes and an appropriate representation of racial and ethnic minorities found in the program area, school, and community origin. The local advisory council will advise on current job needs, relevance of programs, and courses in meeting current job needs and consult with the local educational agency in developing program application.

(3) The program of instruction will include the most up-to-date curriculum based on the competencies required in the occupation or occupational field in which the individual is being prepared, upgraded, or updated.

(4) The program of instruction will be sufficiently extensive in duration and intensive within a schedule unit of time to enable the student to develop the necessary knowledge, attitudes, and skills necessary for employment in the occupation or occupational field.

(5) The program of instruction will combine and coordinate related instruction with field, shop, laboratory, cooperative work, or other occupational experience which is appropriate to the vocational objective of the student, is of sufficient duration to develop competencies necessary for employment in the occupation or occupational field, and supervised, directed, or coordinated by a person qualified under the State Plan.

Facilities, equipment, and instructional materials:

(1) Classrooms, libraries, shops, laboratories, and other facilities, including instructional equipment, supplies, teaching aids, and other materials will be adequate in supply and quality to meet the standands approved by the State Board so that such facilities are adequate to enable those who are to be trained to meet the occupational objective for which the education is intended.

(2) If the State Board or local educational agency cannot provide adequate facilities and materials, and such are available in a business or industrial establishment, funds may be used to reimburse the local public educational agency for training programs conducted in private industry when it complies with the training standards and regulations established by the State Board. Such instruction shall be under the supervision and administration of a local public educational agency.

ACKNOWLEDGEMENT

The Michigan Trade and Industrial Curriculum Guide(s) were developed through a series of workshops held throughout the State and at Michigan State University during the 1982-83 school year.

Appreciation is given to all who have contributed their thoughts, time and energy to this curriculum project.

The Michigan Department of Education, Vocational-Technical Education Service, is indebted to the following individuals who were instrumental in the completion of this project and the development of the materials:

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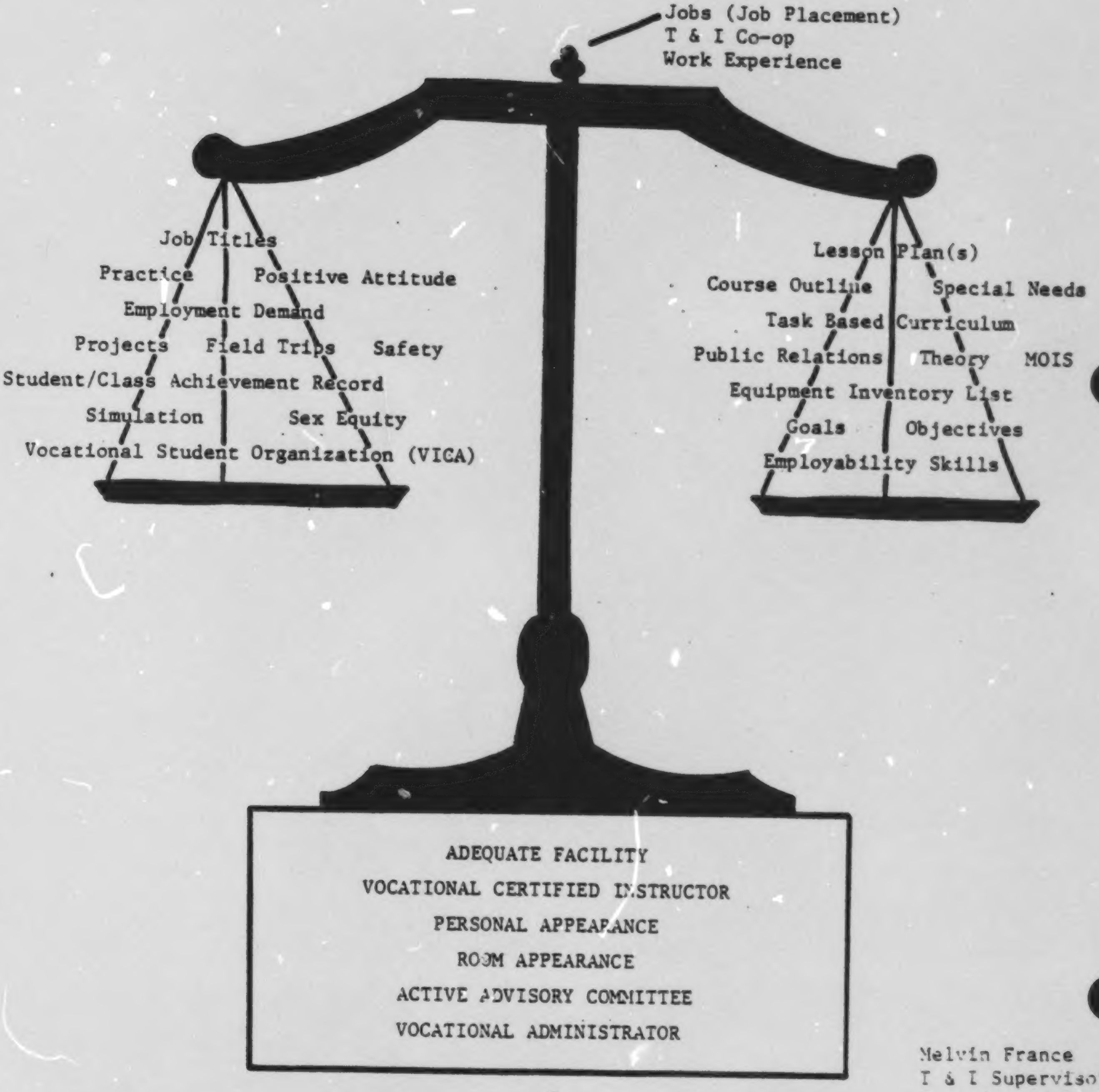
MICHIGAN TRADE AND INDUSTRIAL EDUCATION

IS YOURS A BALANCED PROGRAM?


Jobs (Job Placement)
T & I Co-op
Work Experience
Job Titles
Practice
Positive Attitude
Employment Demand
Projects
Field Trips
Safety
Student/Class Achievement Record
Simulation
Sex Equity
Vocational Student Organization (VICA)
Lesson Plan(s)
Course Outline
Special Needs
Task Based Curriculum
Public Relations
Theory
MOIS
Equipment Inventory List
Goals
Objectives
Employability Skills
ADEQUATE FACILITY
VOCATIONAL CERTIFIED INSTRUCTOR
PERSONAL APPEARANCE
ROOM APPEARANCE
ACTIVE ADVISORY COMMITTEE
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DEPARTMENT OF EDUCATION

STATE BOARD OF EDUCATION

EYE PROTECTIVE DEVICES

Filed with Secretary of State,

These rules take effect 15 days after filing with the Secretary of State

(By authority conferred on the state board of education by section 585a of Act No. 269 of the Public Acts of 1955, as added, being section 340.585a of the Compiled Laws of 1948.)

R 340.1301. Definitions.

Rule 1. As used in these rules:

(a) "Caustic" or "acid" means a material, exclusive of hot water or steam, capable of destroying, eroding or burning of flesh by chemical action.

(b) "Explosive material" means a substance capable of a large-scale, rapid and spectacular expansion which will propel materials in a manner causing injury to the human body.

(c) "Hot liquid" or "solid" means a material having effects that are physically harmful to the eyes.

(d) "Sanitizing" means the disinfecting and cleaning of eye protective devices before use.

(e) "When exposure to eye danger exists" means the exposure when a person is within that distance from sparks, flying particles, rays, molten metal, fumes, glare, glass breakage or chemical splash that such an object or condition could cause damage to his eyes, if he was not using a protective device.

R 340.1302. Educational courses requiring eye protection.

Rule 2. A public educational agency which enrolls students in the following courses when exposure to eye danger exists, shall furnish eye protective devices: vocational or industrial arts shops or laboratories involving the use of or working with hot molten metals, milling, sawing, turning, shaping, grinding, cutting or stamping of any solid materials; heat treatment, tempering or kiln firing of any metal or other materials; gas or electric arc welding; repair or servicing of any vehicles; caustic or explosive materials; or chemical or combined chemical-physical laboratory work involving acid, caustic or explosive chemicals or hot liquids or solids.

R 340.1303. Standards for devices.

Rule 3. (1) An eye protective device shall meet the following standards based upon the operation involved:

(a) Acetylene burning, acetylene cutting, and acetylene welding operations - welding goggles of eyecup type with tinted lenses or welding goggles of coverspec type with tinted lenses or welding goggles of coverspec type with tinted plate lenses. This protects against the primary hazards of sparks, harmful rays, molten metal and flying particles.

(b) Chemical handling operations - goggles of flexible fitting with hooded ventilation or face shield with plastic or mesh window. This protects against the primary hazards of splash, acid burns and fumes.

(c) Chipping operations - goggles of flexible fitting with regular ventilation or goggles of cushioned fitting with rigid body or spectacles of metal frame with sideshields or spectacles of plastic frame with sideshields or spectacles of metal-plastic frame with sideshields or chipping goggles of eyecup type with clear safety lenses or chipping goggles of coverspec type with clear safety lenses. This protects against the primary hazard of flying particles.

(d) Electric (arc) welding operations - welding goggles of coverspec type with tinted plate lenses or welding helmets or welding helmet in combination with tinted lens spectacles. This protects against the primary hazards of sparks, intense rays and molten metal.

(e) Furnace operations - welding goggles of eyecup type with tinted lenses or welding goggles of coverspec type with tinted lenses or welding goggles of coverspec type with tinted plate lenses. This protects against the primary hazards of glare, heat and molten metal.

(f) Light grinding, machining, and spot welding operations - goggles of flexible fitting with regular ventilation or goggles of cushioned fitting with rigid body or spectacles of metal frame with sideshields or spectacles of plastic frame with sideshields or spectacles of metal-plastic frame with sideshields or face shield with plastic or mesh window. This protects against the primary hazards of flying particles and sparks.

(g) Heavy grinding operations - goggles of flexible fitting with regular ventilation or goggles of cushioned fitting with rigid body or chipping goggles of eyecup type with clear safety lenses or chipping goggles of coverspec type with clear safety lenses or in case of severe exposure add face shield with plastic or mesh window. This protects against the primary hazard of flying particles.

(h) Laboratory operations - goggles of flexible fitting with hooded ventilation or face shield in combination with metal or plastic frame spectacles with sideshields. This protects against the primary hazards of chemical splash and glass breakage.

(i) Molten metal operations - welding goggles of eyecup type with tinted lenses or welding goggles of coverspec type with tinted lenses or face shield in combination with metal or plastic frame spectacles with sideshields and tinted lenses. This protects against the primary hazards of heat, glare, sparks and splash.

(2) The standards described in subrule (1) are taken from the American National Standards Safety Code Z87.1-1968, figure 8, page 28, which is available from the American National Standards Institute, Incorporated, 1430 Broadway, New York, New York 10018, at a cost of $5.00. Applicable excerpts from the American National Standards Safety Code are available at no cost from the Michigan department of education, Lansing, Michigan.

R 340.1304. Sanitization of devices.

Rule 4. An eye protective device shall be sanitized when 2 or more students use the same device, by either:

(a) Washing after each use in warm water and soap or detergent, followed by a rinse in running water.

(b) Placing in a cabinet with ultraviolet light and washing once a week as in subdivision (a).

R 340.1305. Compliance.

Rule 5. (1) A superintendent of a school district shall certify to the intermediate school district superintendent not later than the second week of each school year, on forms prescribed by the Michigan department of education, that eye protective devices meeting the standards of these rules have been obtained. For the school year 1972-73, certification shall be made within 4 weeks after the effective date of these rules. This certification shall also indicate that instructors have been informed that all students, teachers and visitors shall wear the devices when exposure to eye damage exists, as identified in these rules.

(2) An intermediate school district superintendent shall report to the state superintendent of public instruction by October 1 the names of those constituent school districts which are not in compliance with these rules. For the school year 1972-73, the report shall be made within 6 weeks after the effective date of these rules.

(3) The state superintendent of public instruction shall notify a school district in violation of these rules that it shall comply or show cause why compliance cannot be made within 30 days.

ACT NO. 54 OF THE PUBLIC ACTS OF 1972

ENROLLED SENATE BILL NO. 553

AN ACT to amend Act No. 269 of the Public Acts of 1955, entitled "The Michigan School Code", and to repeal certain acts and parts of acts, as amended, being sections 340.1 to 340.984 of the Compiled Laws of 1948, by adding section 585a.

The People of the State of Michigan enact:

Section 1. Act No. 269 of the Public Acts of 1955, as amended, being sections 340.1 to 340.984 of the Compiled Laws of 1948, is amended by adding section 585a to read as follows:

Sec. 585a. (1) Every pupil and teacher participating in a course mentioned in this section shall wear industrial quality eye protective devices, which have been sanitized prior to use, when exposure to danger exists while participating in such course. The board of education shall furnish the devices for pupils, teachers and visitors to the classrooms or laboratories. The courses for which protective devices are required are:

(a) Vocational or industrial arts shops or laboratories involving the use of or working with hot molten metals, milling, sawing, turning, shaping, grinding, cutting or stamping of any solid materials; heat treatment, tempering or kiln firing of any metal or other materials; gas or electric arc welding; repair or servicing of any vehicle; or caustic or explosive materials.

(b) Chemical or combined chemical-physical laboratory work involving acid, caustic or explosive chemicals or hot liquids or solids.

(2) "Industrial quality eye protective devices" means devices meeting the standards of the american standard safety code for head, eye and respiratory protection, Z87.1-1968, promulgated by the american standards association, incorporated.

(3) The provisions of this section shall be enforced pursuant to rules promulgated by the state board of education in accordance with and subject to Act No. 306 of the Public Acts of 1969, as amended, being sections 24.201 to 24.315 of the Compiled Laws of 1948.

Section 2. This amendatory act shall take effect September 1, 1972.

The following adapted from the:

NATIONAL STANDARD SCHOOL SHOP SAFETY INSPECTION CHECK LIST

Prepared by the Joint Safety Committee of the
AMERICAN VOCATIONAL ASSOCIATION — NATIONAL SAFETY COUNCIL

________________________________ ________________ Date________________

INTRODUCTION

A safe environment is an essential part of the school shop safety education program. The safe environment will exist only if hazards are discovered and corrected through *regular* and *frequent* inspections by school personnel—administrators, teachers and students. Safety inspections are to determine if everything is satisfactory.

Inspections may be made at the request of the board of education, the school administration or upon the initiative of the teacher. Some communities have drawn upon the cooperative service of professional safety engineers, inspectors of state labor departments, insurance companies and local safety councils to supplement and confirm inspections by school personnel.

The National Standard School Shop Safety Inspection Check List, recommended by the President's Conference on Industrial Safety is an objective inspection procedure for the school shop.

DIRECTIONS

WHO INSPECTS?

This will depend upon local policies. It is recommended, however, that shop teachers, and students—the student safety engineer and/or student safety committee—participate in making regular inspections. This not only tends to share responsibility but stimulates a broader interest in the maintenance of a safe school shop.

WHEN TO INSPECT?

As a minimum, a safety inspection should be made at the beginning of every school term or semester. More frequent inspections may be advisable.

HOW TO INSPECT?

Inspections should be well planned in advance.

Inspections should be systematic and thorough. No location that may contain a hazard should be overlooked.

Inspection reports should be clear and concise, but with sufficient explanation to make each recommendation for improvement understandable.

FOLLOW-UP

The current report should be compared with previous records to determine progress. The report should be studied in terms of the accident situation so that special attention can be given to those conditions and locations which are accident producers.

Each unsafe condition should be corrected as soon as possible in accordance with accepted local procedures.

A definite policy should be established in regard to taking materials and equipment out of service because of unsafe conditions.

The inspection report can be used to advantage as the subject for staff and class discussion.

CHECKING PROCEDURE

Draw a circle around the appropriate letter, using the following letter scheme:

S — Satisfactory (needs no attention)
A — Acceptable (needs some attention)
U — Unsatisfactory (needs immediate attention)

Recommendations should be made in all cases where a "U" is circled. Space is provided at the end of the form for such comments. Designate the items covered by the recommendations, using the code number applicable (as B-2).

In most categories, space is provided for listing of standards, requirements or regulations which have local application only.

A. GENERAL PHYSICAL CONDITION

1. Machines, benches, and other equipment are arranged so as to conform to good safety practices........................ S A U
2. Condition of stairways........................ S A U
3. Condition of aisles........................ S A U
4. Condition of floors........................ S A U
5. Condition of walls, windows, and ceiling........................ S A U
6. Illumination is safe, sufficient, and well placed........ S A U
7. Ventilation is adequate and proper for conditions..... S A U
8. Temperature control........................ S A U
9. Fire extinguishers are of proper type, adequately supplied, properly located and maintained........................ S A U
10. Teacher and pupils know location of and how to use proper type for various fires........................ S A U
11. Number and location of exits is adequate and properly identified........................ S A U
12. Proper procedures have been formulated for emptying the room of pupils and taking adequate precautions in case of emergencies S A U
13. Lockers are inspected regularly for cleanliness and fire hazards. S A U
14. Locker doors are kept closed........................ S A U
15. Walls are clear of objects that might fall............ S A U
16. Utility lines are properly identified................ S A U
17. Teachers know the procedure in the event of fire including notification of the fire department and the evacuation of the building. S A U
18. Air in shop is free from excessive dust, smoke, etc.... S A U
19. ________________________________ S A U
20. ________________________________ S A U
21. ________________________________ S A U
22. ________________________________ S A U
23. Evaluation for the total rating of A. GENERAL PHYSICAL CONDITION........................ S A U

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B. HOUSEKEEPING

1. General appearance as to orderliness................ S A U
2. Adequate and proper storage space for tools and materials. S A U
3. Benches are kept orderly............................ S A U
4. Corners are clean and clear.......................... S A U
5. Special tool racks, in orderly condition, and provided at benches and machines..................................... S A U
6. Tool, supply, and/or material room is orderly....... S A U
7. Sufficient scrap boxes are provided................. S A U
8. Scrap stock is put in scrap boxes promptly........... S A U
9. Materials are stored in an orderly and safe condition.. S A U
10. A spring lid metal container is provided for waste and oily rags. S A U
11. All waste materials and oily rags are promptly placed in the containers.. S A U
12. Containers for oily rags and waste materials are frequently and regularly emptied.................................. S A U
13. Dangerous materials are stored in metal cabinets..... S A U
14. Machines have been color conditioned............... S A U
15. Safety cans are provided for flammable liquids....... S A U
16. Bulk storage of dangerous materials is provided outside of the main building.. S A U
17. A toe-board or railing around a mezzanine used for storage or washing facilities.................................. S A U
18. Materials are stored in an orderly and safe condition on this mezzanine.. S A U
19. Flammable liquids are not used for cleaning purposes S A U
20. Floors are free of oil, water and foreign material..... S A U
21. Floors, walls, windows, and ceilings are cleaned periodically. S A U
22. ______________________________ S A U
23. ______________________________ S A U
24. ______________________________ S A U
25. ______________________________ S A U
26. Evaluation for the total rating for B. HOUSEKEEPING S A U

C. EQUIPMENT

1. Machines are arranged so that workers are protected from hazards of other machines, passing students, etc.................. S A U
2. Danger zones are properly indicated and guarded..... S A U
3. All gears, moving belts, etc., are protected by permanent enclosure guards.. S A U
4. All guards are used as much as possible.............. S A U

C. EQUIPMENT (continued)

5. All equipment control switches are easily available to operator [illegible] U
6. All machines are "locked off" when instructor is out of the ro S A
7. Brushes are used for cleaning equipment............. S A U
8. Nonskid areas are provided around machines......... S A U
9. Machines are in safe working condition.............. S A U
10. Machines are guarded to comply with American Standards Association and local state code.......................... S A U
11. Adequate supervision is maintained when students are using machines and dangerous tools........................... S A U
12. Tools are kept sharp, clean and in safe working order S A U
13. All hoisting devices are in safe operating condition... S A U
14. Machines are shut off while unattended............. S A U
15. Adequate storage facilities for tools, equipment, etc., not in immediate use.. S A U
16. ______________________________ S A U
17. ______________________________ S A U
18. ______________________________ S A U
19. ______________________________ S A U
20. Evaluation for the total rating for C. EQUIPMENT.. S A U

D. ELECTRICAL INSTALLATION

1. All switches are enclosed.............................. S A U
2. There is a master control switch for all of the electrical installa tions.. S A U
3. Electrical outlets and circuits are properly identified.. S A U
4. All electrical extension cords are in safe condition and are no carrying excessive loads............................... S A U
5. All machine switches are within easy reach of the operators. S A U
6. Electrical motors and equipment are wired to comply with the National Electric Code.................................. S A U
7. Individual cut-off switches are provided for each machine. S A U
8. Machines are provided with overload and underload controls b magnetic pushbutton controls........................... S A U
9. No temporary wiring in evidence...................... S A U
10. ______________________________ S A U
11. ______________________________ S A U
12. ______________________________ S A
13. ______________________________ S A U
14. Evaluation for the total rating for D. ELECTRICAL IN STALLATION.................................... [illegible] U

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E. GAS

1. Gas flow to appliances is regulated, so that when appliance valve is turned on full, the flames are not too high............ S A U

2. Gas appliances are properly insulated with asbestos or other insulating material from tables, benches, adjacent walls, or other flammable materials .... S A U

3. No gas hose is used where pipe connections could be made. S A U

4. Gas appliances have been adjusted so that they may be lighted without undue hazard...................................... S A U

5. Students have been instructed when lighting gas appliances to light the match first before turning on the gas............ S A U

6. There are no gas leaks, nor is any odor of gas detectable in any part of the shop...................................... S A U

7. Shop instruction has been given concerning the lighting of gas furnaces operating with both air and gas under pressure.. S A U

8. When lighting the gas forge, goggles are worn....... S A U

9. When lighting the gas furnace, the following procedure is used: (a) light the match; (b) turn on the gas; (c) drop the match in the hole in top of the furnace.............................. S A U

10. In shutting down the gas furnace, the gas valve is closed before the air valve.. S A U

11. ______________________________ S A U

12. ______________________________ S A U

13. ______________________________ S A U

14. ______________________________ S A U

5. Evaluation for the total rating for E. GAS.......... S A U

F. PERSONAL PROTECTION

1. Goggles or protective shields are provided and required for all work where eye hazards exist.......................... S A U

2. If individual goggles are not provided, hoods and goggles are properly disinfected before use.......................... S A U

3. Shields and goggles are provided for electric welding.. S A U

4. Rings and other jewelry are removed by pupils when working in the shop.. S A U

5. Proper kind of wearing apparel is worn and worn properly for the job being done.................................... S A U

6. Leggings, safety shoes, etc., are worn in special classes such as foundry, etc., when needed.......................... S A U

7. Respirators are provided for dusty or toxic atmospheric conditions such as when spraying in the finishing room......... S A U

8. Provisions are made for cleaning and sterilizing respirators. S A U

9. Students are examined for safety knowledge ability.. S A U

10. Sleeves are rolled above elbows when operating machines. S A U

11. Clothing of students is free from loose sleeves, flopping ties, loose coats, etc. .... S A U

12. _____ S A U

F. PERSONAL PROTECTION (continued)

13. ______________________________ S A U

14. ______________________________ S A U

15. ______________________________ S A U

16. Evaluation for the total rating for F. PERSONAL PROTECTION. S A U

G. INSTRUCTION

1. Shop Safety is taught as an integral part of each teaching unit. S A U

2. Safety rules are posted particularly at each danger station. S A U

3. Printed safety rules are given each student.......... S A U

4. Pupils take a safety pledge........................ S A U

5. Use of a safety inspector.......................... S A U

6. Use of a student shop safety committee.............. S A U

7. Use of safety contests............................ S A U

8. Motion and/or slide films on safety are used in the instruction. S A U

9. Use of suggestion box............................ S A U

10. Use of safety tests.............................. S A U

11. Use of safety posters............................ S A U

12. Talks on safety are given to the classes by industrial men. S A U

13. Tours are taken of industrial plants as a means of studying safety practices .... S A U

14. Periodic safety inspections of the shop are made by a student committee .... S A U

15. Men from industry make safety inspections of the shop S A U

16. Student shop safety committee investigates all accidents S A U

17. A proper record is kept of safety instructions which are given, preferably showing the signature of student on tests given in this area .... S A U

18. Rotate students on the Shop Safety Committee so that as many students as possible have an opportunity to participate... S A U

19. ______________________________ S A U

20. ______________________________ S A U

21. ______________________________ S A U

22. ______________________________ S A U

23. Evaluation for the total rating of G. INSTRUCTION S A U

H. ACCIDENT RECORDS

1. There is a written statement outlining the proper procedure when and if a student is seriously hurt........................ S A U

2. Adequate accident statistics are kept................ S A U

3. Accidents are reported to the proper administrative authority by the instructor .... S A U

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H. ACCIDENT RECORD (continued)

4. A copy of each accident report is filed with the State Department of Education .... S A U

5. Accident reports are analyzed for instructional purposes and to furnish the basis for elimination of hazards.............. S A U

6. ______________________________ S A U

7. ______________________________ S A U

8. ______________________________ S A U

9. ______________________________ S A U

10. Evaluation for the total rating of H. ACCIDENT RECORDS. S A U

I. FIRST AID

1. An adequately stocked first aid cabinet is provided...

2. The first aid is administered by a qualified individual S A

3. The school has individuals qualified to administer first aid. S A

4. ______________________________ S A

5. ______________________________ S A

6. ______________________________ S A

7. ______________________________ S A

8. Evaluation for the total rating of I. FIRST AID.... S A

RECOMMENDATIONS

Code No.

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Rep. 10M57601

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Construction Trades

Barry Smith (Task Force Leader)
St. Clair County Skill Center
499 Range Road; POCS-1
Marysville, MI 48040

Lee Beauchamp
Niles High School
1441 Eagle Street
Niles, MI 49120

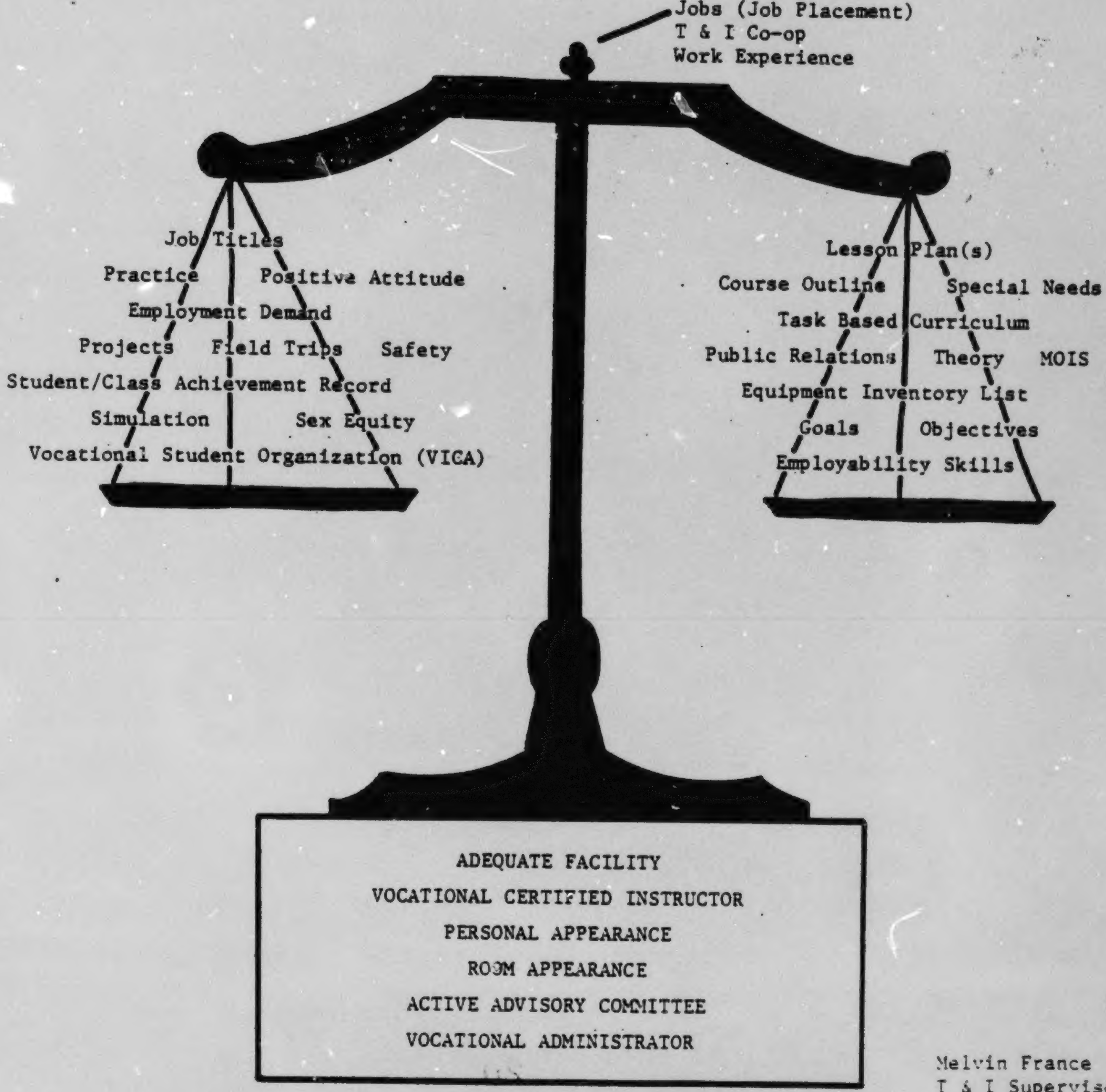
Robert Westdorp
Branch Area Career Center
366 Morse Street, Box 509
Coldwater, MI 49036

Steve Barnum (Task Force Leader)
Lakewood High School
Route 3, Velte Road
Lake Odessa, MI 48849

Duane Olds
Northeast Oakland Vocational
Education Center
1371 N. Perry Street
Pontiac, MI 48058

MICHIGAN TRADE AND INDUSTRIAL EDUCATION

IS YOURS A BALANCED PROGRAM?



Jobs (Job Placement)
T & I Co-op
Work Experience

Job Titles
Practice
Positive Attitude
Employment Demand
Projects
Field Trips
Safety
Student/Class Achievement Record
Simulation
Sex Equity
Vocational Student Organization (VICA)

Lesson Plan(s)
Course Outline
Special Needs
Task Based Curriculum
Public Relations
Theory
MOIS
Equipment Inventory List
Goals
Objectives
Employability Skills

ADEQUATE FACILITY
VOCATIONAL CERTIFIED INSTRUCTOR
PERSONAL APPEARANCE
ROOM APPEARANCE
ACTIVE ADVISORY COMMITTEE
VOCATIONAL ADMINISTRATOR

Melvin France
T & I Supervisor
Secondary Unit

DEPARTMENT OF EDUCATION

STATE BOARD OF EDUCATION

EYE PROTECTIVE DEVICES

Filed with Secretary of State,

These rules take effect 15 days after filing with the Secretary of State

(By authority conferred on the state board of education by section 585a of Act No. 269 of the Public Acts of 1955, as added, being section 340.585a of the Compiled Laws of 1948.)

R 340.1301. Definitions.

Rule 1. As used in these rules:

(a) "Caustic" or "acid" means a material, exclusive of hot water or steam, capable of destroying, eroding or burning of flesh by chemical action.

(b) "Explosive material" means a substance capable of a large-scale, rapid and spectacular expansion which will propel materials in a manner causing injury to the human body.

(c) "Hot liquid" or "solid" means a material having effects that are physically harmful to the eyes.

(d) "Sanitizing" means the disinfecting and cleaning of eye protective devices before use.

(e) "When exposure to eye danger exists" means the exposure when a person is within that distance from sparks, flying particles, rays, molten metal, fumes, glare, glass breakage or chemical splash that such an object or condition could cause damage to his eyes, if he was not using a protective device.

R 340.1302. Educational courses requiring eye protection.

Rule 2. A public educational agency which enrolls students in the following courses when exposure to eye danger exists, shall furnish eye protective devices: vocational or industrial arts shops or laboratories involving the use of or working with hot molten metals, milling, sawing, turning, shaping, grinding, cutting or stamping of any solid materials; heat treatment, tempering or kiln firing of any metal or other materials; gas or electric arc welding; repair or servicing of any vehicles; caustic or explosive materials; or chemical or combined chemical-physical laboratory work involving acid, caustic or explosive chemicals or hot liquids or solids.

R 340.1303. Standards for devices.

Rule 3. (1) An eye protective device shall meet the following standards based upon the operation involved:

(a) Acetylene burning, acetylene cutting, and acetylene welding operations - welding goggles of eyecup type with tinted lenses or welding goggles of coverspec type with tinted lenses or welding goggles of coverspec type with tinted plate lenses. This protects against the primary hazards of sparks, harmful rays, molten metal and flying particles.

(b) Chemical handling operations - goggles of flexible fitting with hooded ventilation or face shield with plastic or mesh window. This protects against the primary hazards of splash, acid burns and fumes.

(c) Chipping operations - goggles of flexible fitting with regular ventilation or goggles of cushioned fitting with rigid body or spectacles of metal frame with sideshields or spectacles of plastic frame with sideshields or spectacles of metal-plastic frame with sideshields or chipping goggles of eyecup type with clear safety lenses or chipping goggles of coverspec type with clear safety lenses. This protects against the primary hazard of flying particles.

(d) Electric (arc) welding operations - welding goggles of coverspec type with tinted plate lenses or welding helmets or welding helmet in combination with tinted lens spectacles. This protects against the primary hazards of sparks, intense rays and molten metal.

(e) Furnace operations - welding goggles of eyecup type with tinted lenses or welding goggles of coverspec type with tinted lenses or welding goggles of coverspec type with tinted plate lenses. This protects against the primary hazards of glare, heat and molten metal.

(f) Light grinding, machining, and spot welding operations - goggles of flexible fitting with regular ventilation or goggles of cushioned fitting with rigid body or spectacles of metal frame with sideshields or spectacles of plastic frame with sideshields or spectacles of metal-plastic frame with sideshields or face shield with plastic or mesh window. This protects against the primary hazards of flying particles and sparks.

(g) Heavy grinding operations - goggles of flexible fitting with regular ventilation or goggles of cushioned fitting with rigid body or chipping goggles of eyecup type with clear safety lenses or chipping goggles of coverspec type with clear safety lenses or in case of severe exposure add face shield with plastic or mesh window. This protects against the primary hazard of flying particles.

(h) Laboratory operations - goggles of flexible fitting with hooded ventilation or face shield in combination with metal or plastic frame spectacles with sideshields. This protects against the primary hazards of chemical splash and glass breakage.

(i) Molten metal operations - welding goggles of eyecup type with tinted lenses or welding goggles of coverspec type with tinted lenses or face shield in combination with metal or plastic frame spectacles with sideshields and tinted lenses. This protects against the primary hazards of heat, glare, sparks and splash.

(2) The standards described in subrule (1) are taken from the American National Standards Safety Code Z87.1-1968, figure 8, page 28, which is available from the American National Standards Institute, Incorporated, 1430 Broadway, New York, New York 10018, at a cost of $5.00. Applicable excerpts from the American National Standards Safety Code are available at no cost from the Michigan department of education, Lansing, Michigan.

R 340.1304. Sanitization of devices.

Rule 4. An eye protective device shall be sanitized when 2 or more students use the same device, by either:

(a) Washing after each use in warm water and soap or detergent, followed by a rinse in running water.

(b) Placing in a cabinet with ultraviolet light and washing once a week as in subdivision (a).

R 340.1305. Compliance.

Rule 5. (1) A superintendent of a school district shall certify to the intermediate school district superintendent not later than the second week of each school year, on forms prescribed by the Michigan department of education, that eye protective devices meeting the standards of these rules have been obtained. For the school year 1972-73, certification shall be made within 4 weeks after the effective date of these rules. This certification shall also indicate that instructors have been informed that all students, teachers and visitors shall wear the devices when exposure to eye damage exists, as identified in these rules.

(2) An intermediate school district superintendent shall report to the state superintendent of public instruction by October 1 the names of those constituent school districts which are not in compliance with these rules. For the school year 1972-73, the report shall be made within 6 weeks after the effective date of these rules.

(3) The state superintendent of public instruction shall notify a school district in violation of these rules that it shall comply or show cause why compliance cannot be made within 30 days.

ACT NO. 54 OF THE PUBLIC ACTS OF 1972

ENROLLED SENATE BILL NO. 553

AN ACT to amend Act No. 269 of the Public Acts of 1955, entitled "The Michigan School Code", and to repeal certain acts and parts of acts, as amended, being sections 340.1 to 340.984 of the Compiled Laws of 1948, by adding section 585a.

The People of the State of Michigan enact:

Section 1. Act No. 269 of the Public Acts of 1955, as amended, being sections 340.1 to 340.984 of the Compiled Laws of 1948, is amended by adding section 585a to read as follows:

Sec. 585a. (1) Every pupil and teacher participating in a course mentioned in this section shall wear industrial quality eye protective devices, which have been sanitized prior to use, when exposure to danger exists while participating in such course. The board of education shall furnish the devices for pupils, teachers and visitors to the classrooms or laboratories. The courses for which protective devices are required are:

(a) Vocational or industrial arts shops or laboratories involving the use of or working with hot molten metals, milling, sawing, turning, shaping, grinding, cutting or stamping of any solid materials; heat treatment, tempering or kiln firing of any metal or other materials; gas or electric arc welding; repair or servicing of any vehicle; or caustic or explosive materials.

(b) Chemical or combined chemical-physical laboratory work involving acid, caustic or explosive chemicals or hot liquids or solids.

(2) "Industrial quality eye protective devices" means devices meeting the standards of the american standard safety code for head, eye and respiratory protection, Z87.1-1968, promulgated by the american standards association, incorporated.

(3) The provisions of this section shall be enforced pursuant to rules promulgated by the state board of education in accordance with and subject to Act No. 306 of the Public Acts of 1969, as amended, being sections 24.201 to 24.315 of the Compiled Laws of 1948.

Section 2. This amendatory act shall take effect September 1, 1972.

The following adapted from the:

NATIONAL STANDARD SCHOOL SHOP SAFETY INSPECTION CHECK LIST

Prepared by the Joint Safety Committee of the
AMERICAN VOCATIONAL ASSOCIATION — NATIONAL SAFETY COUNCIL

______________________________ ______________ Date______________

INTRODUCTION

A safe environment is an essential part of the school shop safety education program. The safe environment will exist only if hazards are discovered and corrected through *regular* and *frequent* inspections by school personnel—administrators, teachers and students. Safety inspections are to determine if everything is satisfactory.

Inspections may be made at the request of the board of education, the school administration or upon the initiative of the teacher. Some communities have drawn upon the cooperative service of professional safety engineers, inspectors of state labor departments, insurance companies and local safety councils to supplement and confirm inspections by school personnel.

The National Standard School Shop Safety Inspection Check List, recommended by the President's Conference on Industrial Safety is an objective inspection procedure for the school shop.

DIRECTIONS

WHO INSPECTS?

This will depend upon local policies. It is recommended, however, that shop teachers, and students—the student safety engineer and/or student safety committee—participate in making regular inspections. This not only tends to share responsibility but stimulates a broader interest in the maintenance of a safe school shop.

WHEN TO INSPECT?

As a minimum, a safety inspection should be made at the beginning of every school term or semester. More frequent inspections may be advisable.

HOW TO INSPECT?

Inspections should be well planned in advance.

Inspections should be systematic and thorough. No location that may contain a hazard should be overlooked.

Inspection reports should be clear and concise, but with sufficient explanation to make each recommendation for improvement understandable.

FOLLOW-UP

The current report should be compared with previous records to determine progress. The report should be studied in terms of the accident situation so that special attention can be given to those conditions and locations which are accident producers.

Each unsafe condition should be corrected as soon as possible in accordance with accepted local procedures.

A definite policy should be established in regard to taking materials and equipment out of service because of unsafe conditions.

The inspection report can be used to advantage as the subject for staff and class discussion.

CHECKING PROCEDURE

Draw a circle around the appropriate letter, using the following letter scheme:

S — Satisfactory (needs no attention)
A — Acceptable (needs some attention)
U — Unsatisfactory (needs immediate attention)

Recommendations should be made in all cases where a "U" is circled. Space is provided at the end of the form for such comments. Designate the items covered by the recommendations, using the code number applicable (as B-2).

In most categories, space is provided for listing of standards, requirements or regulations which have local application only.

A. GENERAL PHYSICAL CONDITION

1. Machines, benches, and other equipment are arranged so as to conform to good safety practices........................ S A U
2. Condition of stairways................................ S A U
3. Condition of aisles................................ S A U
4. Condition of floors................................ S A U
5. Condition of walls, windows, and ceiling.............. S A U
6. Illumination is safe, sufficient, and well placed........ S A U
7. Ventilation is adequate and proper for conditions..... S A U
8. Temperature control................................ S A U
9. Fire extinguishers are of proper type, adequately supplied, properly located and maintained........................ S A U
10. Teacher and pupils know location of and how to use proper type for various fires........................ S A U
11. Number and location of exits is adequate and properly identified........................ S A U
12. Proper procedures have been formulated for emptying the room of pupils and taking adequate precautions in case of emergencies S A U
13. Lockers are inspected regularly for cleanliness and fire hazards. S A U
14. Locker doors are kept closed........................ S A U
15. Walls are clear of objects that might fall............ S A U
16. Utility lines are properly identified.................. S A U
17. Teachers know the procedure in the event of fire including notification of the fire department and the evacuation of the building. S A U
18. Air in shop is free from excessive dust, smoke, etc.... S A U
19. ______________________________ S A U
20. ______________________________ S A U
21. ______________________________ S A U
22. ______________________________ S A U
23. Evaluation for the total rating of A. GENERAL PHYSICAL CONDITION........................ S A U

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B. HOUSEKEEPING

1. General appearance as to orderliness.................. S A U
2. Adequate and proper storage space for tools and materials. S A U
3. Benches are kept orderly.................. S A U
4. Corners are clean and clear.................. S A U
5. Special tool racks, in orderly condition, and provided at benches and machines.................. S A U
6. Tool, supply, and/or material room is orderly.......... S A U
7. Sufficient scrap boxes are provided.................. S A U
8. Scrap stock is put in scrap boxes promptly.............. S A U
9. Materials are stored in an orderly and safe condition.. S A U
10. A spring lid metal container is provided for waste and oily rags. S A U
11. All waste materirls and oily rags are promptly placed in the containers.................. S A U
12. Containers for oily rags and waste materials are frequently and regularly emptied.................. S A U
13. Dangerous materials are stored in metal cabinets..... S A U
14. Machines have been color conditioned.................. S A U
15. Safety cans are provided for flammable liquids....... S A U
16. Bulk storage of dangerous materials is provided outside of the main building.................. S A U
17. A toe-board or railing around a mezzanine used for storage or washing facilities.................. S A U
18. Materials are stored in an orderly and safe condition on this mezzanine.................. S A U
19. Flammable liquids are not used for cleaning purposes S A U
20. Floors are free of oil, water and foreign material..... S A U
21. Floors, walls, windows, and ceilings are cleaned periodically. S A U
22. ______________________ S A U
23. ______________________ S A U
24. ______________________ S A U
25. ______________________ S A U
26. Evaluation for the total rating for B. HOUSEKEEPING S A U

C. EQUIPMENT

1. Machines are arranged so that workers are protected from hazards of other machines, passing students, etc.................. S A U
2. Danger zones are properly indicated and guarded..... S A U
3. All gears, moving belts, etc., are protected by permanent enclosure guards.................. S A U
4. All guards are used as much as possible.................. S A U

C. EQUIPMENT (continued)

5. All equipment control switches are easily available to operator U
6. All machines are "locked off" when instructor is out of the ro S A
7. Brushes are used for cleaning equipment.................. S A U
8. Nonskid areas are provided around machines........ S A U
9. Machines are in safe working condition.................. S A U
10. Machines are guarded to comply with American Standards Association and local state code.................. S A U
11. Adequate supervision is maintained when students are using machines and dangerous tools.................. S A U
12. Tools are kept sharp, clean and in safe working order S A U
13. All hoisting devices are in safe operating condition... S A U
14. Machines are shut off while unattended.................. S A U
15. Adequate storage facilities for tools, equipment, etc., not in immediate use.................. S A U
16. ______________________ S A U
17. ______________________ S A U
18. ______________________ S A U
19. ______________________ S A U
20. Evaluation for the total rating for C. EQUIPMENT.. S A U

D. ELECTRICAL INSTALLATION

1. All switches are enclosed.................. S A U
2. There is a master control switch for all of the electrical installations.................. S A U
3. Electrical outlets and circuits are properly identified.. S A U
4. All electrical extension cords are in safe condition and are no carrying excessive loads.................. S A U
5. All machine switches are within easy reach of the operators. S A U
6. Electrical motors and equipment are wired to comply with the National Electric Code.................. S A U
7. Individual cut-off switches are provided for each machine. S A U
8. Machines are provided with overload and underload controls by magnetic pushbutton controls.................. S A U
9. No temporary wiring in evidence.................. S A U
10. ______________________ S A U
11. ______________________ S A U
12. ______________________ S A
13. ______________________ S A
14. Evaluation for the total rating for D. ELECTRICAL INSTALLATION.................. S A U

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E. GAS

1. Gas flow to appliances is regulated, so that when appliance valve is turned on full, the flames are not too high............ S A U

2. Gas appliances are properly insulated with asbestos or other insulating material from tables, benches, adjacent walls, or other flammable materials .... S A U

3. No gas hose is used where pipe connections could be made. S A U

4. Gas appliances have been adjusted so that they may be lighted without undue hazard.. S A U

5. Students have been instructed when lighting gas appliances to light the match first before turning on the gas............ S A U

6. There are no gas leaks, nor is any odor of gas detectable in any part of the shop.. S A U

7. Shop instruction has been given concerning the lighting of gas furnaces operating with both air and gas under pressure.. S A U

8. When lighting the gas forge, goggles are worn........ S A U

9. When lighting the gas furnace, the following procedure is used: (a) light the match; (b) turn on the gas; (c) drop the match in the hole in top of the furnace.. S A U

10. In shutting down the gas furnace, the gas valve is closed before the air valve.. S A U

11. ______________________________ S A U

12. ______________________________ S A U

13. ______________________________ S A U

14. ______________________________ S A U

15. Evaluation for the total rating for E. GAS.......... S A U

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7. Respirators are provided for dusty or toxic atmospheric conditions such as when spraying in the finishing room......... S A U

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9. Students are examined for safety knowledge ability.. S A U

10. Sleeves are rolled above elbows when operating machines. S A U

11. Clothing of students is free from loose sleeves, flopping ties, loose coats, etc. .... S A U

12. ____ S A U

F. PERSONAL PROTECTION (continued)

13. ______________________________ S A U

14. ______________________________ S A U

15. ______________________________ S A U

16. Evaluation for the total rating for F. PERSONAL PROTECTION. S A U

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2. Safety rules are posted particularly at each danger station. S A U

3. Printed safety rules are given each student.......... S A U

4. Pupils take a safety pledge.......................... S A U

5. Use of a safety inspector............................ S A U

6. Use of a student shop safety committee............ S A U

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9. Use of suggestion box............................... S A U

10. Use of safety tests................................ S A U

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19. ______________________________ S A U

20. ______________________________ S A U

21. ______________________________ S A U

22. ______________________________ S A U

23. Evaluation for the total rating of G. INSTRUCTION S A U

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1. There is a written statement outlining the proper procedure when and if a student is seriously hurt........................ S A U

2. Adequate accident statistics are kept.................. S A U

3. Accidents are reported to the proper administrative authority by the instructor .... S A U

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H. ACCIDENT RECORD (continued)

4. A copy of each accident report is filed with the State Department of Education .... S A U

5. Accident reports are analyzed for instructional purposes and to furnish the basis for elimination of hazards.............. S A U

6. ________________________ S A U

7. ________________________ S A U

8. ________________________ S A U

9. ________________________ S A U

10. Evaluation for the total rating of H. ACCIDENT RECORDS. S A U

I. FIRST AID

1. An adequately stocked first aid cabinet is provided... [illegible] A

2. The first aid is administered by a qualified individual S A

3. The school has individuals qualified to administer first aid. S A

4. ________________________ S A

5. ________________________ S A

6. ________________________ S A

7. ________________________ S A

8. Evaluation for the total rating of I. FIRST AID.... S A

RECOMMENDATIONS

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C.I.P. PROGRAM DESCRIPTION

46.0000 Construction Trades

A summary of groups of instructional programs that prepare individuals to erect, install, maintain, and repair buildings, highways, airports, missile sites, and other structures using materials such as metal, wood, stone, brick, glass, concrete, and composition substances. Includes instruction in cost estimating; cutting, fastening, and fitting various materials; the use of hand and power tools; and in following technical specifications and blueprints.

Course 01 Construction - On-Site

An approved instructional program that prepares individuals in the accomplishment of the tasks for CIP Code 46.0000 where a product or service is rendered to certain private individuals or public sectors of the surrounding community. The most frequent products of this activity are residential housing units which are sold by the LEA or a third party. Included in this code are programs dealing specifically with residential house construction, modular home, or shed building where such units are sold at a set price or on a bid price system. This code also deals with renovation or add on types of construction where building supplies and/or materials are provided or donated for use in a permanent structure or product.

Course 02 Construction - In-School

An approved instructional program that prepares individuals in the accomplishment of the tasks for CIP Code 46.0000 utilizing the mock-up, build-up, teardown concept of instruction. Included in this definition would be programs specifically dealing with simulation of residential and commercial construction, in a school setting, with experience gained in wall building, wiring, roofing, masonry, concrete work, tools of the trade and all other skills which may be acquired in a classroom or laboratory setting. An in-school program is a higher cost program because the building materials are consumed on a one-time basis which necessitates the purchasing of significant materials for each section. The materials are not sold, but are utilized in the natural course of instruction.

46.0201 Carpentry

An instructional program that prepares individuals to lay out, fabricate, erect, install, and repair wooden structures and fixtures, using hand- and power tools. Includes instruction in common systems of framing, construction materials, estimating, and blueprint reading.

VOCATIONAL COOPERATIVE EDUCATION

Definition

"The term 'cooperative education' means a program of vocational education for persons who, through written cooperative arrangements between the school and employers, receive instruction, including required academic courses and related vocational instruction by alternation of study in school with a job in any occupational field, but these two experiences must be planned and supervised by the school and employers so that each contributes to the student's education and to his or her employability. Work periods and school attendance may be on alternate half days, full days, weeks, or other periods of time in fulfilling the cooperative program." (P.L. 94-482)

Responsibilities of School District

The local school district must meet all the Federal requirements of P.L. 94-482, Section 122; 45 CFR 104.531 through 104.533 and the State of Michigan Statutes and General School Laws listed below:

A. IT IS A PROGRAM OF VOCATIONAL EDUCATION.

"Vocational program" means laboratory, simulation or instruction based upon individually designed learning experiences in a vocational subject preparing the student for competencies required in a recognized occupation coded in accordance with the most recent vocational education listing of programs by the United States Department of Education.

B. THERE IS A WRITTEN AGREEMENT BETWEEN THE SCHOOL AND EMPLOYERS.

The Youth Employment Standards Act (P.A. 90 of 1978) governs the legal employment of minors in Michigan. In section 18 of the Act, a provision is made to allow a written agreement, or contract, to be entered into between an employer and the board of education of the school district, in which the minor is enrolled. This written agreement exempts a student from obtaining a work permit and allows the student to be legally employed in Michigan. The employment, however, shall not be in violation of a Federal Statute or regulation and a signed copy of the agreement shall be on file in the place of employment before a minor begins employment. The training agreement, in cooperative education, is the legal written agreement developed cooperatively between the employer, teacher-coordinator, student, and parent and outlines the responsibilities of the employer and student to the program and establishes the legal conditions of the student-learner's employment.

C. THERE IS INSTRUCTION (INCLUDING REQUIRED ACADEMIC INSTRUCTION) IN SCHOOL RELATED TO THE JOB IN ANY OCCUPATIONAL AREA.

The program is of sufficient duration to develop competencies necessary to prepare the learner for employment. It provides a coordinated instructional program combining supervised part-time employment and classroom instruction related to the learner's job. Related vocational instruction for cooperative education enrollees shall be scheduled weekly.

D. THE ALTERNATION OF STUDY AND WORK ARE PLANNED AND SUPERVISED BY THE SCHOOL AND EMPLOYER IN ORDER TO FURTHER THE STUDENT'S EDUCATION AND EMPLOYABILITY.

The student-learner shall be employed for an average of not less than 15 hours per week during the effective time of the individual's program. The school shall have the responsibility of providing coordination and supervision services during such time.

E. STUDENTS ARE EMPLOYED AND COMPENSATED IN CONFORMITY WITH FEDERAL, STATE AND LOCAL LAWS.

The program provides cooperative on-the-job training that (1) employs and compensates student-learners in conformity with Federal, State, and local laws and regulations and in a manner not resulting in exploitation of the student-learner for private gain, and (2) is conducted in accordance with written training agreements between local education agencies and employers.

References

Individuals requiring additional information pertaining to cooperative education principles and practices are asked to consult the Michigan Department of Education, Vocational-Technical Education Service, developed Cooperative Education Handbook available in September of 1981.

WORK EXPERIENCE

PAID WORK EXPERIENCE

Definition

Paid work experience programs are school-sponsored and supervised employment programs. Students are allowed to earn academic credit while employed in the community. The employment serves as a means of acquiring desirable work habits and attitudes towards the world of work. The employment is not necessarily related to a student's career interest and enrollment in a related vocational education program is not required.

Objectives

Paid work experience programs are designed to provide students an opportunity to:

1. Foster positive attitudes about work, school and society
2. Promote an understanding in the dignity of work
3. Develop a student's ability to understand and function in an employer-employee relationship
4. Earn wages to remain in school
5. Experience an alternative to the traditional school program

Guidelines

1. Written work agreements should be completed between the employer, student, parent and school
2. Written work agreements should be completed in conformance to all Federal, State and local laws, rules and regulations; including non-discrimination against any student because of race, color, sex, national origin or ancestry. This policy of non-discrimination shall also apply to otherwise qualified handicapped individuals
3. Related academic instruction, where possible, should be provided
4. A school work experience coordinator should be provided to serve as a liaison between the student, employee, parents and school officials
5. Academic credit should be awarded for participation in the program

Funding

The Michigan Department of Education, the Vocational-Technical Education Service does not fund paid work experience programs.

UNPAID WORK EXPERIENCE

Definition

Unpaid work experience is a school sponsored and supervised instructional technique used in vocational education programs in which students are placed with an employer for a limited time and are not compensated during the duration of the experience.

Objectives

Unpaid work experience programs are designed to provide students with an opportunity to:

1. Receive on-site exposure to various businesses and industries while participating in a related vocational education program
2. Develop a realistic understanding of the relationship between education and the world of work
3. Enhance a positive self-image
4. Assist in the selection of occupational choices
5. Expand learning opportunities by using community resources

Guidelines

1. The training, even though it includes actual operation of the facilities of the participating employer is similar to that given in a vocational school
2. The training is for the benefit of the trainee
3. The trainee does not displace a regular employee, but does work under a regular employee's close observation
4. The participating employer does not derive an immediate advantage from the activities of the trainee
5. The trainee is not necessarily entitled to a job at the conclusion of the training period
6. The trainee is not entitled to wages for the time spent in the training
7. The training is for not more than 45 hours with a participating employer during each school semester
8. The training is conducted under a written work experience training agreement between the school district and the participating employer

Funding

The Michigan Department of Education, the Vocational-Technical Education Service does not fund unpaid work experience but considers it to be an allowable instructional activity under a given vocational education program.

WORK EXPERIENCE AND CAREER EXPLORATION PROGRAM
(W.E.C.E.P.)

I. Definition

The Work Experience and Career Exploration Program (W.E.C.E.P.) is a school-supervised and administered program that includes part-time work as an integral part of an educational program aimed at motivating 14 and 15 year-old youth toward education and preparing them for the world of work.

II. Program Objectives

There are several objectives of a W.E.C.E.P. program:

A. To provide a career-oriented educational program for dropout prone youth to become oriented and motivated toward education and the world of work.

B. To increase the desire to learn and improve educational performance.

C. To develop a greater degree of self-confidence, responsibility and aid in the maturation process of the student participants.

D. To provide student participants with on-the-job learning experiences that are in harmony with their interests, needs and objectives.

E. To improve school adjustment of student participants for whom the traditional curriculum is found to be inadequate.

F. To promote personal and social adjustment of the student participants and establish emotional stability through a feeling of being engaged in worthwhile activity.

III. Instructional Content

W.E.C.E.P. programs are planned so as to include part-time work supervised by employers and school personnel, as an integrated part of the enrollee's educational program. Students receive work experience on jobs permitted or approved under Federal or State laws. Students are in class with a W.E.C.E.P. teacher-coordinator for job-related and occupational safety, including needed individualized or remedial instruction. Students also receive a minimum of 20 hours of instruction on the Michigan Occupational Information System (MOIS) and a minimum of 30 hours of employability skills instruction. The students' employment is under the supervision of W.E.C.E.P. teacher-coordinators and employers. Students receive all State required courses necessary for graduation. The W.E.C.E.P. program is planned so that the students' individual academic achievement potential is recognized.

IV. Program Organization

The Vocational-Technical Education Service, Michigan Department of Education requires that W.E.C.E.P. programs in local districts meet the following criteria:

A. Eligibility. Any student aged 14 or 15 years, whom authoritative local school personnel identify as being able to benefit from the program, shall be eligible to participate.

B. Credits. Students shall receive school credits for both in-school related instruction and on-the-job experience.

C. Size. Each program unit shall consist of 12 to 25 students to one W.E.C.E.P. teacher-coordinator.

D. Instructional Schedule. W.E.C.E.P. students will spend a minimum of four periods daily in classroom instruction including one period of 180 hours of instruction devoted to job-related and employability skill instruction, safety and career exploration. Each student will have a minimum of 20 hours of career exploration utilizing the Michigan Occupational Information System (MOIS) and have a minimum of 30 hours of instruction in employability skills training. The employability skills training will equal or exceed the employability skills performance objectives adopted, as part of Michigan Vocational-Technical Service programs. Each local district submitting a letter of application to operate a W.E.C.E.P. program will furnish to the Vocational-Technical Education Service a course outline for the related class.

E. W.E.C.E.P. Teacher-Coordinator. Each program unit shall be under the supervision of a school official to be designated for the purpose of the program as a W.E.C.E.P. teacher-coordinator, who shall generally supervise the program and coordinate the work and education aspects of the program and make regularly scheduled visits to the work stations.

F. Written W.E.C.E.P. Training Agreement. No student shall participate in the program until there has been made a written E.E.C.E.P. training agreement signed by the W.E.C.E.P. teacher-coordinator, the employer and the student. The agreement shall also be signed or otherwise consented to by the student's parent or guardian. The W.E.C.E.P. training agreement will detail job tasks and related in-school instruction. A sample W.E.C.E.P. training agreement will be submitted annually by the local district to the Vocational-Technical Education Service.

G. Provision for Health and Well-Being. Employment under W.E.C.E.P. will not interfere with the schooling of the minors or with their health and well-being.

H. Records and Reports. The names and addresses of each school and the names and addresses of each employer enrolling work experience and career exploration program students and the number of enrollees in each unit shall be kept at the Vocational-Technical Education Service's office. A copy of the written W.E.C.E.P. training agreement for each student participating in the program shall be kept in the local educational office. The records required (for this paragraph) shall be kept for a period of three years from the date of enrollment in the program and shall be made available for inspection or transcription to the representatives of the Administrator of the Wage and Hour Division. Each school district operating a W.E.C.E.P. program shall submit an annual evaluative report by June 30th, which details the results of the W.E.C.E.P. program in terms of attendance and tardiness patterns, grade point average trends and dropout statistics of the enrollees. Based on a favorable state agency evaluation, a local district will be approved on an annual basis to operate a W.E.C.E.P. program. Under no circumstances can a local district operate a W.E.C.E.P. program without first obtaining written state agency approval for the program.

I. Approved Occupations. Employment of minors enrolled in a W.E.C.E.P. program approved pursuant to the requirements of this section shall be permitted in all occupations except the following:

1. Manufacturing and mining.
2. Occupations declared to be hazardous for the employment of minors between 16 and 18 years of age in Subpart E of Part 570 Child Labor Regulations, Orders and Statements of Interpretation of the Federal Fair Labor Standards Act, and occupations in agriculture declared to be hazardous for employment of minors below the age of 16 in Subpart E-1 of this part.
3. Occupations other than those permitted under sections 570.33 and 570.34 except upon approval of a variation in individual cases or classes of cases by the Administrator of the Wage and Hour Division after notice to interested persons and opportunity to be heard.

Employment of minors enrolled in a W.E.C.E.P. program approved pursuant to the requirements of this section shall be confined to not more than 23 hours in any week when school is in session and not more than three hours in any day when school is in session, any portion of which may be during school hours.

Employment of W.E.C.E.P. participants must not have the effect of displacing a worker in the establishment of the employer. Participants in W.E.C.E.P. must be paid according to the statutory minimum wage provision of the Fair Labor Standards Act.

V. Approval of Local Programs

Local school districts desiring approval to operate a W.E.C.E.P. program must submit an annual letter of application by June 30th to the

Michigan Department of Education
Vocational-Technical Education Service
Secondary Unit
Box 30009
Lansing, MI 48909
(517) 373-3365

VOCATIONAL WORK-STUDY

Definition and Purpose

The vocational work-study program is for those students who are in need of earnings from employment in order to commence or continue their vocational education programs.

Administration

The work-study program shall be administered by local educational agencies and made available, to the extent of available funds, to all qualified youth, in the area served by such agencies, who meet requirements.

Eligible Students

Employment under the work-study program shall be furnished only to a student who (a) has been accepted for enrollment or, if already enrolled, is in good standing and in full time attendance as a full-time student in a vocational education program which meets the standards of the state board and of the local educational agency and the requirements of the state plan, (b) is in need of the earnings from such employment to commence or continue a vocational education program, and (c) is at least 15 years of age and less than 21 years of age at the date of commencement of employment and is capable in the opinion of the appropriate school authorities of maintaining good standing in a school program while employed under the work-study program.

Limitation of Hours and Compensation of Employment

No student shall be employed under a vocational work-study program for more than 20 hours in any week in which classes in which the student is enrolled are in session. Summer employment shall not exceed 40 hours per week.

Employers

Employment under work-study programs shall be for the local educational agency or for some other public agency or institution, federal, state, or local and work so performed shall be adequately supervised and coordinated and shall not supplant present employees of such agency or institution who ordinarily perform such work. In those instances where employment under work-study programs is for a federal agency or institution, the written arrangement between the local educational agency and the federal agency or institution shall state that students so employed are not federal employees for any purpose.

Amounts Spent for Employment

In each fiscal year during which the work-study program remains in effect, the local educational agency shall expend for employment of its students an amount in state and/or local funds that is not less than the average annual expenditure for work-study programs of a similar nature during the three fiscal years preceding in which the supplementary plan provisons for its work study program are approved.

Applications, Priorities, and Approval

Work-study programs shall be approved on an individual basis by the state board and shall be consistent with the policies and procedures set forth.

Applications by Local Educational Agencies

Local educational agencies shall submit project proposals to the state board staff for approval in a manner similar to other vocational education programs.

Priority of Projects

Work-study programs will be provided, insofar as financial resources are available, for the undertaking of such programs in the order determined by the application of criteria for determining relative priority of projects which shall include preference for local educational agencies serving communities having substantial numbers of dropouts and unemployed youths and may include other relevant factors such as the extent to which the local educational agencies are using guidance and counseling and other related services designed to achieve the purposes of the work-study program.

CARPENTRY
JOB TITLES

D.O.T.	JOB TITLE
869.381-010	House Repairer
860.381-022	Carpenter
860.381-022	Finish Carpenter
860.381-042	Rough Carpenter
842.361-010	Lather
866.381-010	Roofer
867.687-026	Roofer Helper

DUTY/TASK - JOB MATRIX

DUTY/TASK NUMBER

JOB TITLE																	

TASK LISTING
FOR
CARPENTRY

A. FRAMING THE STRUCTURE

1. Estimate rough framing materials using appropriate tools and equipment to determine materials.
2. Estimate windows using appropriate tools and equipment to determine that windows must be correct to meet building codes.
3. Identify framing members using knowledge of framing to perform proper work techniques and communicate effectively.
4. Identify abbreviations commonly used in working with lumber using knowledge to be able to use lumber properly.
5. Stack lumber using student labor and knowledge to facilitate orderly use of lumber once construction begins.
6. Select proper hammer and drive various types and sizes of nails using student labor and knowledge to demonstrate skills in selecting appropriate type and size nails and hammer for joining stock.
7. Check and align installations for level and plumb using carpenter's level to demonstrate skill in leveling and plumbing units of framing.
8. Read and measure using rules and squares to provide accurate fit of material in house frame.
9. Cut lumber using portable power saw to provide framing material.
10. Build saw horses using framing lumber to provide working surface for cutting.
11. Identify defects and blemishes using knowledge to determine durability and strength of lumber.
12. Check foundation for squareness using a one hundred foot tape to establish the building's suitability for ease of construction and appearance.
13. Install beam in foundation beam pockets using manual labor on which rests floor joists.
14. Construct plywood box beam using appropriate tools and equipment framing material, and plywood upon which rests the floor joists.
15. Install steel beam using student labor and skill upon which rests the floor joists.
16. Install lally post using skills in leveling and plumbing to support beams or girders.
17. Install sill plate using framing lumbers and appropriate tools and equipment upon which rests the floor joists.

A. FRAMING THE STRUCTURE (continued)

18. Install floor joists using framing lumber and appropriate tools and equipment to provide strength for floor system.

19. Frame floor opening using framing lumber and appropriate tools and equipment to provide strength to areas surrounding the opening.

20. Install bridging using furring strips and appropriate tools and equipment to stiffen the floor system.

21. Install plyscore subflooring using appropriate tools and equipment to provide a base for the finished floor.

22. Construct corner post using framing lumber and appropriate tools and equipment to provide wall strength and backing for lathe or drywall.

23. Construct partition backers using framing lumber and appropriate tools and equipment to provide backing for lathe or drywall.

24. Frame window opening using framing lumber and appropriate tools and equipment to provide a structurally sound opening in which windows are placed.

25. Frame door opening using framing lumber and appropriate tools and equipment to provide a structurally sound opening in which doors are placed.

26. Frame exterior walls using studs framing lumber to provide structural support for interior and exterior coverings and roof structure.

27. Frame and align a partition wall using framing materials and appropriate tools and equipment to support interior wall coverings and roof structure.

28. Install pocket door frame using lumber and appropriate tools and equipment to provide an opening for the door.

29. Construct post and beam framing using lumber and appropriate tools and equipment to provide structural support for interior and exterior wall coverings and roof structure.

30. Install metal studs using appropriate tools and equipment to provide support for interior and exterior wall coverings and roof structure.

31. Install purlin using framing lumber and appropriate tools and equipment to stiffen walls.

32. Install firestops using framing lumber and appropriate tools and equipment to limit spread of fire.

33. Install plywood corner bracing using plywood and framing tools to provide wind bracing and stiffen wall section.

A. FRAMING THE STRUCTURE (continued)

34. Install diagonal bracing where necessary using 1x4s or metal wind bracing and framing tools to stiffen wall section.

35. Install exterior wall sheathing using sheathing of choice and framing tools to stiffen walls, insulate interior and provide backing for siding.

36. Raise wall and install temporary bracing using student labor and appropriate tools and equipment and framing lumber to provide temporary support for wall.

37. Install ceiling joists using framing lumber and appropriate tools and equipment to provide strength for ceiling finish.

38. Install ceiling joists' strongbacks using framing lumber and appropriate tools and equipment to stiffen the ceiling joists.

39. Install backing nailers for lathe using framing lumber and appropriate tools and equipment to provide a nailing surface.

40. Construct roof truss using blueprints, framing lumber and appropriate tools and equipment to provide structural support for roof and ceiling coverings.

41. Calculate the rise and run of a common roof using teacher specified method and appropriate tools and equipment to determine roof pitch necessary to lay out roof.

42. Determine length of rafters using teacher specified method and appropriate tools and equipment to layout proper rafter pattern.

43. Layout and install common rafters using framing lumber and appropriate tools and equipment to provide support for roof plywood and roofing materials.

44. Layout and install ridgeboard using framing lumber and appropriate tools and equipment to provide rigid support for upper end of rafters.

45. Install hip rafters using framing lumber and appropriate tools and equipment to provide support for jack rafters.

46. Install hip jacks rafters using framing materials and appropriate tools and equipment to provide support for roof plywood and roofing materials.

47. Install cripple jack rafters using framing materials and appropriate tools and equipment to provide support for plywood deck and roofing materials.

48. Install valley rafters using framing lumber and appropriate tools and equipment to provide support for valley jack rafters, roof plywood and roofing materials.

A. FRAMING THE STRUCTURE (continued)

49. Install valley jack rafters using framing lumber and appropriate tools and equipment to provide support for jack rafters.

50. Install gambrel roof rafters using framing lumber and appropriate tools and equipment to provide support for roof plywood and roofing materials.

51. Construct intersecting gable roof using framing lumber and appropriate tools and equipment to provide support for roof plywood and roofing materials.

52. Frame roof opening using framing materials and appropriate tools and equipment to strengthen framed area around opening.

53. Frame dormer using framing materials and appropriate tools and equipment to provide structural components for dormer.

54. Install collar beams using framing materials and appropriate tools and equipment to tie apposing rafters together to eliminate roof sag.

55. Frame roof saddle above chimney using framing material and appropriate tools and equipment to provide proper rain water run off.

56. Frame snub gable using framing materials and appropriate tools and equipment to complete roof.

57. Install gable studs using framing materials and appropriate tools and equipment to provide support for gable wall covering.

58. Install roof overhangs using framing materials and appropriate tools and equipment to comply with building plans for style of house.

59. Install roof sheathing using 1/2" CDX plywood sheathing to provide a nailing base for roofing materials.

60. Estimate roofing materials using knowledge and appropriate tools and equipment to determine correct amount of roofing materials.

61. Install roofing felt using 15 pound felt and appropriate tools and equipment to provide water resistant base for roof.

62. Install metal drip edge using appropriate tools and equipment to allow water to drip off roof away from house trim.

63. Install valley flashing using appropriate materials, tools and equipment to provide leak proof roofing at valley.

64. Install composite strip shingles using appropriate tools and equipment to apply final leak proof layer to roof.

65. Install composite shingles - valley using appropriate tools and equipment to provide leak proof layer of shingles to valley area.

A. FRAMING THE STRUCTURE (continued)

66. Install composite shingles around roof opening using appropriate tools and equipment to leak proof roof opening area.

67. Install bonding shingles over dormer or roof appendage using appropriate tools and equipment to leak proof dormer or roof appendage and match shingles to main roof.

68. Install composite shingles ridge cap using appropriate tools and equipment to provide a decorative leak proof finishing to roof ridge.

69. Install wood shingles/shakes using apppropriate tools and equipment to provide a decorative leak proof finish to house.

70. Install wood shingles/shakes on valley using appropriate tools and equipment to provide a decorative leak proof finish to the valley area.

71. Install wood shingles/shakes around roof opening using appropriate tools and equipment to provide a leak proof finish around the roof opening.

72. Install wood shingles/shakes-ridge cap using appropriate tools and equipment to provide a decorative seal to roof ridge.

73. Install chimney flashing using appropriate tools and equipment to leak proof the joint between chimney and roof.

74. Install roof vent using appropriate tools and equipment to provide adequate ventilation to attic area.

75. Install ridge vent using appropriate tools and equipment to vent attic area.

76. Install skylight using appropriate tools and equipment to provide a leak proof light and ventilation source through roof framing.

77. Install built-up roofs using appropriate tools and equipment to provide a leak proof finish to roof area.

78. Install roll roofing using appropriate tools and equipment to provide a decorative leak proof finish to low pitch roofs.

79. Frame built-up stringer using appropriate tools and equipment to provide access to adjacent floor levels.

80. Frame cleated stair stringer using appropriate tools and equipment to provide access to adjacent floor levels.

81. Construct open riser stairs using appropriate tools and equipment to provide access to adjacent floor levels.

82. Construct box stairs using appropriate tools and equipment to provide access to adjacent floor levels.

A. FRAMING THE STRUCTURE (continued)

83. Install prefabricated stairs using appropriate tools and equipment to provide access to adjacent floor levels.

84. Install backing for hanging fixtures and cabinet using appropriate tools and equipment to provide a nail or screw base to which fixtures and cabinets are fastened.

85. Construct single pole scaffold using appropriate tools and equipment to provide a safe, efficient work space above ground level.

86. Construct double-pole scaffold using appropriate tools and equipment to provide a safe, efficient work space above ground level.

B. TRIMMING THE EXTERIORS

1. Estimate siding using appropriate tools and equipment to establish materials required to complete project.

2. Construct rake cornice using appropriate tools and equipment to complete job.

3. Construct box cornice using appropriate tools and equipment to complete job.

4. Install wood fascia using appropriate tools and equipment to complete job.

5. Install wood soffit using appropriate tools and equipment to complete job.

6. Install aluminum fascia using appropriate tools and equipment to complete job.

7. Install aluminum soffit using appropriate tools and equipment to complete job.

8. Case exterior opening using appropriate tools and equipment to complete job.

9. Install window using appropriate tools and equipment to complete job.

10. Install drip cap using appropriate tools and equipment to flash window or door.

11. Install prefabricated storm unit using appropriate tools and equipment to seal window.

12. Install exterior pre-hung door using appropriate tools and equipment to allow for a well sealed entrance.

B. TRIMMING THE EXTERIORS (continued)

13. Install exterior door jamb using appropriate tools and equipment to allow for door installation.

14. Hang exterior door using appropriate tools and equipment to complete job.

15. Caulk doors and windows using appropriate tools and equipment to seal the unit.

16. Install garage door using appropriate tools and equipment to complete job.

17. Install corner board for wood siding using appropriate tools and equipment to seal corners.

18. Install bevel or lap siding using appropriate tools and equipment to seal exterior.

19. Install metal corner for siding using appropriate tools and equipment to seal corners.

20. Install metal or vinyl siding using appropriate tools and equipment to seal exterior walls.

21. Install outside corner of wood shingle siding using appropriate tools and equipment to seal exterior corners.

22. Install wood shingle siding using appropriate tools and equipment to seal exterior walls.

23. Install panel siding using appropriate tools and equipment to seal exterior walls.

24. Construct and install wood louvers using appropriate tools and equipment to allow for proper venting.

25. Install exterior shutters using appropriate tools and equipment to complete exterior trim.

26. Install gutter(s) using appropriate tools and equipment to control rain water.

27. Install downspout(s) using appropriate tools and equipment to control rain water.

C. TRIMMING THE INTERIORS - BASIC SKILLS

1. Use personal protective equipment using appropriate tools and equipment to provide safety for personnel.

2. Identify job safety requirements using appropriate aids to provide a safe working environment.

C. TRIMMING THE INTERIOR - BASIC SKILLS (continued)

3. Set up ladders using instructed methods to provide safe work area.

4. Service and maintain portable woodworking power tools using appropriate tools and equipment to provide workable tools.

5. Sharpen circular saw blades using appropriate tools and equipment to provide a means of cutting.

6. Sharpen and care for handsaws using appropriate tools and equipment to provide a means of cutting.

7. Sharpen plane irons and care for hand planes using appropriate tools and equipment to provide safe and efficient planes.

8. Shape edges on wood shaper using appropriate tools and equipment to comply with contour required.

9. Sharpen twist drills and augers using appropriate tools and equipment to provide a means of drilling.

10. Sharpen and care for wood chisels using appropriate tools and equipment to provide a means of cutting.

11. Check and align installations for level and plumb using appropriate tools and equipment to provide a level and plumb finished product.

12. Copy and transfer angles using sliding T-bevel, framing combination squares as layout tools to provide a means of cutting matching components.

13. Select proper hammer and drive various types and sizes of nails using appropriate tools and equipment to allow fusing components together.

14. Read and measure using rules and squares to fit components together.

15. Glue wood stock using hand and bar clamps to fasten components together.

16. Bore holes with hand brace using augers and expansion bits to provide a means of drilling holes.

17. Drill bore holes using the portable hand drill to drill holes.

18. Plane stock to specified sizes using hand planes to comply with size needed.

19. Plane stock using the power hand plane to provide flat, smooth stock.

20. Plane stock to thickness using a single surface planer (surfacer) to provide thickness required.

C. TRIMMING THE INTERIORS - BASIC SKILLS (continued)

21. Sand surfaces and edges using belt sander to provide smooth surfaces.

22. Sand finish materials by hand using appropriate tools and equipment to provide a smooth surface.

23. Set nails using a nail set and apply wood filler to provide a smooth finished surface.

24. Joint stock using the jointer to provide a smooth edge or surface.

25. Shape stock using outline pattern to provide the contour wanted.

26. Install dowels in common wood joints using appropriate tools and equipment to provide a solid joint.

27. Install splines in common wood joints using appropriate tools and equipment to provide a solid joint.

28. Make butt joints using appropriate tools and equipment to make a joint.

29. Make lap joints using appropriate tools and equipment to make a joint.

30. Make mortise and tenon joint using appropriate tools and equipment to make appropriate joints.

31. Make rabbet joints using appropriate tools and equipment to provide an adequate joint.

32. Make dado joints using appropriate tools and equipment to provide an adequate joint.

33. Make miter joints using appropriate tools and equipment to provide an adequate joint.

34. Cut compound miters using table saw to provide adequate joints.

35. Rip plywood using portable power saw to provide size of sheet required.

36. Cut small trim stock using coping saw to provide length or contour required.

37. Cut irregular shapes using portable router to obtain shapes required.

38. Cut chamfers using a table saw to provide angle wanted.

39. Cut dado using portable router to obtain size of dado wanted.

40. Cut holes using keyhole saw to provide hole sizes required.

41. Cut large sheets of plywood and wallboard using table saw to provide saw sheets required.

C. TRIMMING THE INTERIORS - BASIC SKILLS (continued)

42. Cut irregular shaped patterns using saber and band saws to provide contour required.

D. TRIMMING THE INTERIORS

1. Estimate interior underlayment using appropriate tools and equipment to ensure adequate material to complete the job.
2. Install underlayment over subflooring using appropriate tools and equipment to provide a finish surface for floor covering.
3. Estimate doors and jambs using appropriate tools and equipment to ensure adequate material to complete the job.
4. Hang interior door using appropriate tools and equipment to enable the closing and opening of the door.
5. Install interior jamb using appropriate tools and equipment to provide a framework for the door.
6. Install prehung door unit using appropriate tools and equipment to provide a finished opening and closing unit upon completion.
7. Cut molding using appropriate tools and equipment to allow jointing of materials.
8. Case interior opening using appropriate tools and equipment to provide a finished surface.
9. Install double-acting door using appropriate tools and equipment to provide a door that will swing easily in both directions without rubbing jamb.
10. Install folding door using appropriate tools and equipment to provide a door that will work smoothly and close tightly against jamb.
11. Install sliding door using appropriate tools and equipment to provide a door that fits against side jambs and rolls smoothly across track.
12. Install bi-fold door using appropriate tools and equipment to provide doors that slide smoothly in the track.
13. Install pocket door using appropriate tools and equipment to provide a door that will close firmly against jamb.
14. Estimate finish hardware using appropriate tools and equipment to ensure adequate material to complete job.
15. Install cylinder lockset using appropriate tools and equipment to allow the door to close easily and lock firmly.

D. TRIMMING THE INTERIORS (continued)

16. Install mortise lockset using appropriate tools and equipment to allow the door to close and latch smoothly.

17. Install closer using appropriate tools and equipment to allow the door to cloose smoothly and slowly without banging.

18. Install door plate using appropriate tools and equipment to provide a centering device for the latch.

19. Install flush bolt using appropriate tools and equipment to provide a means of locking the door.

20. Install baseboards using appropriate tools and equipment to provide a finished surface where wall and floor meet.

21. Install ceiling molding using appropriate tools and equipment to provide a finished surface at wall and ceiling.

22. Fill nail holes using appropriate tools and equipment to provide a smooth finished surface on the trim.

23. Install cabinet using appropriate tools and equipment to provide secured component.

24. Estimate prefabricated cabinets using appropriate tools and equipment to ensure adequate component.

25. Assemble prefabricated cabinet using appropriate tools and equipment to provide a secure component.

26. Estimate material for built-ins using appropriate tools and equipment to ensure adequate components to complete the job.

27. Construct built-in cabinet using appropriate tools and equipment to provide secure components.

28. Estimate interior paneling using appropriate tools and equipment to ensure adequate materials to complete the task.

29. Estimate closet accessories using appropriate tools and equipment to ensure adequate material to complete job.

30. Install shelving using appropriate tools and equipment to provide an area for storage.

31. Estimate acoustical ceiling material using appropriate tools and equipment to ensure adequate material to complete job.

32. Install suspended T-grid ceiling using appropriate tools and equipment to provide a ceiling with a suspended grid.

33. Install tongue and groove ceiling tiles using appropriate tools and equipment to provide a tongue and groove finished product.

D. TRIMMING THE INTERIORS (continued)

34. Estimate stairway materials using appropriate tools and equipment to ensure adequate materials.

35. Install wood newel post, balusters and railing using appropriate tools and equipment to provide a finished railing around floor openings.

36. Install metal newel post and railing using appropriate tools and equipment to provide a finished area around floor openings.

37. Install medicine cabinet using appropriate tools and equipment to provide a storage space.

38. Install threshold using appropriate tools and equipment to provide a barrier under the door.

39. Install panic bar using appropriate tools and equipment to provide a quick opening device on the door.

40. Install closet accessories using appropriate tools and equipment to provide adequate components inside the closet to meet specifications.

41. Trim and cut laminate joints using appropriate tools and equipment to provide a finished surface.

42. Cut gains for door hinges using portable router to provide flush installation of hinges.

43. Install disappearing stair unit using appropriate tools and equipment to provide a means of gaining access from one level to another.

E. USING EMPLOYABILITY SKILLS

1. Investigate employment information using sources of employment information to identify employment opportunities.

2. Identify job requirements using health, physical, legal, education, and other occupational information to determine the requirements of an occupation.

3. Acquire wage information using available resources to determine the approximate entry wages, general wage range, and significant fringe benefits for an occupation.

4. Identify significant non-wage job characteristics using available resources to determine shift requirements, union affiliation, apprenticeships, occupational hazards, characteristics of work environment and other significant job factors.

E. USING EMPLOYABILITY SKILLS (continued)

5. Explore employment opportunities using available resources to describe local, regional, and national employment opportunities for an occupation.
6. Analyze career ladder using available resources to describe job progression in an occupation.
7. Identify personal criteria with information about available alternatives using a decision-making situation and skills in decision-making to choose a job, further training or other alternatives.
8. Prepare a resume using personal information to apply for a job.
9. Write a letter of application using personal notes to apply/inquire about a job.
10. Complete a job application using personal notes to apply for a job.
11. Demonstrate appropriate dress using a knowledge of job requirements to comply with standards of on-the-job dress and grooming.
12. Complete a job interview using communication and interpersonal skills to become employed.
13. Describe personal criteria using references to identify acceptable job offers.
14. Demonstrate interpersonal skills to achieve successful relationships with others.
15. Identify source of continuing education for an occupation using available resources to identify career ladder alternatives.
16. Describe job termination procedures using a knowledge of the occupational area to leave a particular job.

Duty: Framing the Structure

Duty No. A

Task No. 1

Task: Estimate rough framing materials using appropriate tools and equipment to determine materials.

Achievement Indicators: The learner: Yes No

1. Measured linear feet of foundation walls to determine lineal footage of foundation plates - ____ ____
2. Measured lineal feet of interior and exterior walls - ____ ____
3. Multiplied wall footage by 3 to determine linear footage wall plates - ____ ____
4. Multiplied linear feet of walls by 3/4 to determine number of studs - ____ ____

   NOTE: Studs on 24 inch center...multiply by 1/2

5. Measured length of foundation perpendicular to joists - ____ ____
6. Multiplied length of foundation by 1 1/2 to determine number of runs of floor joists, trusses, ceiling joists and rafters - ____ ____

   NOTE: Multiply by 1 for 24" centers.

7. Determined number of unit (members) per run from plans - ____ ____
8. Multiplied number of runs of joists, trusses, or, rafters by number of members per run to determine total quantity of joists, trusses or rafters - ____ ____

   NOTE: Eliminate ceiling joists for catherdral ceilings.

9. Measured lengths of all surfaces to receive plywood - ____ ____
10. Measured widths of all surfaces to receive plywood - ____ ____
11. Multiplied lengths by widths to determine square footage of surfaces - ____ ____
12. Added surface areas together - ____ ____
13. Divided total surface area by 32 to determine number of sheets - ____ ____
14. Determined types, widths, grades of wood from specifications - ____ ____

Yes No

15. Recorded estimates - ____ ____

Criteria: Competence in the task will recognized when the materials are sufficient to frame a house with little or no material excess.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure	**Duty No.** A **Task No.** 2

Task: Estimate windows using appropriate tools and equipment to determine that windows must be correct to meet building codes.

Achievement Indicators: The learner:

	Yes	No
1. Measured height of rough openings -	____	____
2. Measured width of rough openings -	____	____
3. Counted windows -	____	____
4. Grouped windows according to sizes -	____	____
5. Recorded calculations -	____	____

Criteria: Competence in the task will be recognized when the windows are correct and meet building code in quantity and size.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 3

Task: Identify framing members using knowledge of framing to perform proper work techniques and communicate effectively.

Achievement Indicators: The learner: Yes No

1. Identified framing members listed in drawings and illustrations as provided - ____ ____

Criteria: Competence in the task will be recognized when the framing members are listed in the drawings and illustrations are provided.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 4

Task: Identify abbreviations commonly used in working with lumber using knowledge to be able to use lumber properly.

Achievement Indicators: The learner: Yes No

1. Identified abbreviations commonly used on drawings and specifications as provided - ____ ____

Criteria: Competence in the task will be recognized when using a list of thirty abbreviations, full terms opposite each abbreviation can be written.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 5

Task: Stack lumber using student labor and knowledge to facilitate orderly use of lumber once construction begins.

Achievement Indicators: The learner:

	Yes	No
1. Located best site for lumber pile -	____	____
2. Placed scraps of lumber on ground to raise pile of surface -	____	____
3. Stacked boards in reverse order of useage -	____	____
4. Covered all lumber with tarpaulins to protect from weather -	____	____

Criteria: Competence in the task will be recognized when the lumber is neatly stacked in order of useage and completely covered.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 6

Task: Select proper hammer and drive various types and sizes of nails using student labor and knowledge to demonstrate skills in selecting appropriate type and size nails and hammer for joining stock.

Achievement Indicators: The learner:	Yes	No
1. Selected correct type and size of nail. (The length should be about three times the thickness of the first board.) -	____	____
2. Started nail at desired angle with light taps of hammer -	____	____
3. Used maximum leverage of hammer to drive nail into wood -	____	____
4. Drove head of nail flush with surface of wood -	____	____

Criteria: Competence in the task will be recognized when the following standards apply in work: nails are located away from edge of stock to prevent stock from splitting, nails are staggered so that nails will not be in line with each other, nails are not driven into defects of wood and heads of nails do not protrude above the surface.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 7

Task: Check and align installations for level and plumb using carpenter's level to demonstrate skill in leveling and plumbing units of framing.

Achievement Indicators: The learner:

	Yes	No
1. Placed the level on the horizontal surface that was tested -	____	____
2. Referred to the bottom tube located in the center of the level and observed the position of the bubble -	____	____
3. Raised or lowered one end of the surface to level it -	____	____
4. Always used a straightedge with the spirit level to have a leveled or plumbed a long surface -	____	____
To Test a Vertical Plane for Plumbness		
1. Placed the level against one side of the surface to be tested -	____	____
2. Observed the position of the bubble in the crowned tube -	____	____
3. Checked the accuracy of the level by observing the bubble in the lower tube -	____	____
4. Placed the level on the opposite side of the surface being tested -	____	____
5. Tilted the surface on level in order to plumb the surface with the level -	____	____

Criteria: Competence in the task will be recognized when the following standards apply: units are level, units are plumb and the units are positioned according to specifications.

Tools and Equipment:

Resources:

Duty:	Framing the Structure	**Duty No.**	A
		Task No.	8

Task: Read and measure using rules and squares to provide accurate fit of material in house frame.

Achievement Indicators: The learner:	Yes	No
1. Measured each piece of stock and recorded the dimensions -	____	____
2. Drew four lines to predetermined lengths -	____	____

Criteria: Competence in the task will be recognized when you have measured and recorded the dimensions of three different sizes of stock to the nearest 1/16" and drew four lines to predetermined lengths.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 9

Task: Cut lumber using portable power saw to provide framing material.

Achievement Indicators: The learner:

	Yes	No
1. Obtained necessary lumber -	____	____
2. Measured and laid out cuts according to specifications -	____	____
3. Selected and mounted the correct blade for material to be cut -	____	____
4. Set material on stable saw horses -	____	____
5. Started and completed the assigned cuts using appropriate safety measures -	____	____

Criteria: Competence in the task will be recognized when the cuts are square.or at the specified angle.

Tools and Equipment:

portable power saw
square
saw horses
framing square

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 10

Task: Build saw horses using framing lumber to provide working surface· for cutting.

Achievement Indicators: The learner:

	Yes	No
1. Determined finished size of saw horses (length, width, height.) -	____	____
2. Determined design desired (fixed adjustable.) -	____	____
3. Cut material to shape and size according to design -	____	____
4. Assembled and fastened parts -	____	____
5. Checked accuracy of construction -	____	____

Criteria: Competence in the task will be recognized when you have designed and built two saw horses and they meet the standard requirements for safety and use.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 11

Task: Identify defects and blemishes using knowledge to determine durability and strength of lumber.

Achievement Indicators: The learner: Yes No

1. Identified defects and blemishes in the framing lumber - ____ ____

Criteria: Competence in the task will be recognized when the student has identified three kinds of knots and three types of warps that affect the durability and strength of lumber.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 12

Task: Check foundation for squareness using a one hundred foot tape to establish the building's suitability for ease of construction and appearance.

Achievement Indicators: The learner:

			Yes	No
		Used one of the following methods:		
A	1.	Started at corner of building, measured along top outside of one foundation wall 6' and marked -	____	____
	2.	At same corner, measured out top outside of other foundation wall 8' and marked -	____	____
	3.	Measured distance between marks; if building was square, this measurement would be 10' -	____	____
B	1.	Measured foundation lengths and widths and marked foundation where measurements varied -	____	____
	2.	Diagonally measured foundation corner to corner, measured to previously made marks where adjustments were necessary -	____	____
	3.	Shifted marks on wall where necessary to square the building -	____	____
	4.	Build to these marks -	____	____

Criteria: Competence in the task will be recongized when all marks are accurate.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 13

Task: Install beam in foundation beam pockets using manual labor on which rests floor joists.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans for beam location and specifications -	____	____
2. Checked level and elevations of walls and/or piers intended to support beam -	____	____
3. Raised beam into position -	____	____
4. Secured beam -	____	____
5. Checked for level and adjusted if necessary -	____	____

Criteria: Competence in the task will be recognized when the beam is level, secure, and in specified position and elevation.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 14

Task: Construct plywood box beam using appropriate tools and equipment framing material, and plywood upon which rests the floor joists.

Achievement Indicators: The learner:

	Yes	No
1. Measured distance beam must span -	____	____
2. Checked plans for beam specifications -	____	____
3. Determined number and spacing of studs -	____	____
4. Measured and cut plates (flanges) -	____	____
5. Measured and cut vertical spacers (stiffeners) -	____	____
6. Laid out and marked position of spacers -	____	____
7. Assembled and nailed framework -	____	____
8. Measured and cut plywood sheathing -	____	____
9. Glued sheathing to framework on both sides -	____	____
10. Checked for plumb and square -	____	____
11. Nailed sheathing to framework on both sides -	____	____

Criteria: Competence in the task will be recognized when the flanges are separated by stiffeners for even load distribution; plywood sheathing does not buckle; and glue bond is tight.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 15

Task: Install steel beam using student labor and skill upon which rests the floor joists.

Achievement Indicators: The learner:

	Yes	No
1. Located position of beam from plans -	____	____
2. Laid out position of support posts -	____	____
3. Installed support posts and braced -	____	____
4. Lifted steel beam into place -	____	____
5. Checked level and adjusted if necessary -	____	____
6. Fastened beam -	____	____

Criteria: Competence in the task will be recognized when the beam is located as specified in plan ± 1/8"; beam is level.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A
	Task No. 16

Task: Install lally post using skills in leveling and plumbing to support beams or girders.

Achievement Indicators: The learner:

	Yes	No
1. Determined position of post from plans -	____	____
2. Measured distance between floor and beam -	____	____
3. Screwed in adjustable plate in shortest length -	____	____
4. Inserted rough adjustment pin in hole just less than desired length adjustment -	____	____
5. Positioned pole under beam -	____	____
6. Unscrewed adjustable plate until pole fit tightly -	____	____
7. Checked plumb in both directions -	____	____
8. Adjusted, if necessary -	____	____
9. Attached pole to beam as required and secured to floor -	____	____

Criteria: Competence in the task will be recognized when the post is plumb and tight.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 17

Task: Install sill plate using framing lumbers and appropriate tools and equipment upon which rests the floor joists.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans and specifications for size and setback of sill plate -	____	____
2. Marked setback with chalk line -	____	____
3. Measured and cut first length of plate, using single piece if possible -	____	____
4. Cut any additional plate lengths with all ends square -	____	____
5. Placed plate(s) upright along chalked line and marked position of anchor bolts -	____	____
6. Drilled holes for each bolt -	____	____
7. Set plate(s) over anchor bolts -	____	____
8. Checked for fit and adjusted if necessary -	____	____
9. Removed plate(s) and installed sill seal -	____	____
10. Replaced and secured plate in place with washers and nuts -	____	____
11. Repeated steps 4-8 for remaining perimeter of foundation -	____	____

Criteria: Competence in the task will be recognized when the sill plate is level.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 18

Task: Install floor joists using framing lumber and appropriate tools and equipment to provide strength for floor system.

Achievement Indicators:

The learner:	Yes	No
1. Laid out header joists on sill plate in platform construction -	____	____
2. Toenailed headers to sill -	____	____
3. Determined direction and specifications of floor joists -	____	____
4. Determined location of floor openings from plans -	____	____
5. Laid out and marked floor joists' positions on header joists or sill plates -	____	____
6. Measured and cut floor joists where necessary -	____	____
7. Leveled joists -	____	____
8. Nailed joist in place -	____	____
9. Checked and adjusted headers and edges if necessary -	____	____
10. Measured and cut end bands in sill installation -	____	____
11. Nailed end bands in position if necessary -	____	____

Criteria: Competence in the task will be recognized when the joists are level, plumb with crowns up, and are parallel and spaced as specified in plans.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 19

Task: Frame floor opening using framing lumber and appropriate tools and equipment to provide strength to areas surrounding the opening.

Achievement Indicators: The learner:

	Yes	No
1. Determined location and dimesions of floor opening from plans -	____	____
2. Selected stock for joists and headers -	____	____
3. Measured and cut floor joists -	____	____
4. Measured and cut trimmer joists -	____	____
5. Measured and cut headers -	____	____
6. Marked rough opening position on joists -	____	____
7. Installed floor joists -	____	____
8. Installed trimmer joists -	____	____
9. Installed double headers -	____	____
10. Measured, cut and installed tail joists -	____	____
11. Installed joists' hangers on all non-supported joist and header ends -	____	____

Criteria: Competence in the task will be recognized when the floor framing members around large openings are doubled.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 20

Task: Install bridging using furring strips and appropriate tools and equipment to stiffen the floor system.

Achievement Indicators: The learner: Yes No

1. Located position of bridging from plans - ____ ____
2. Calculated angle of cut - ____ ____
3. Measured length from top of joist to bottom of adjacent joist - ____ ____
4. Cut two pieces of bridging for each joist space - ____ ____
5. Struck chalk line across tops of joists - ____ ____
6. Secured each bridging to top of each joist with two nails - ____ ____

Note: Secure bottoms of bridging after installation of subfloor.

Criteria: Competence in the task will be recognized when the bridging is installed in straight line at intervals not to exceed eight feet.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 21

Task: Install plyscore subflooring using appropriate tools and equipment to provide a base for the finished floor.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans for subfloor specifications for treatment -	____	____
2. Measured deck for square -	____	____
3. Struck line 48 1/4 inches from starting point -	____	____
4. Ran glue bead -	____	____
5. Aligned first full sheet to chalk line -	____	____
6. Nailed sheet -	____	____
7. Completed first row -	____	____
8. Repeated steps 3-7 until deck was completed staggering joints -	____	____
9. Trimmed edges -	____	____

Criteria: Competence in the task will be recognized when the deck is tight, free of squeaks, nail heads are flush with subflooring joints staggered.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 22

Task: Construct corner post using framing lumber and appropriate tools and equipment to provide wall strength and backing for lathe or drywall.

Achievement Indicators: The learner:

	Yes	No
1. Laid out corner on plates as specified in plans -	____	____
2. Measured and cut two studs -	____	____
3. Positioned three spacer blocks between studs; one at top, one in middle, one at bottom -	____	____
4. Nailed blocks at top, bottom and middle from both sides so that sides and ends of blocks and studs were flush - an alternate corner post such as an L may be used -	____	____
5. Located corner post between plates and nailed together -	____	____
6. Nailed end stud from adjacent wall to corner post to complete corner -	____	____
7. Checked plumb -	____	____

Criteria: Competence in the task will be recognized when the corner post is square and plumb and located as specified in plan.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 23

Task: Construct partition backers using framing lumber and appropriate tools and equipment to provide backing for lathe or drywall.

Achievement Indicators: The learner:

	Yes	No
1. Laid out plates as specified on plans -	____	____
2. Used precuts -	____	____
3. Spaced framing for wall -	____	____
4. Nailed members to plate -	____	____
5. Inserted block in center for support -	____	____

Criteria: Competence in the task will be recognized when the task is performed to the supervisor's specifications and building standards.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 24

Task: Frame window opening using framing lumber and appropriate tools and equipment to provide a structurally sound opening in which windows are placed.

Achievement Indicators: The learner:

	Yes	No
1. Determined location and size of opening from plans -	____	____
2. Laid out width of rough opening and marked plates -	____	____
3. Selected framing stock -	____	____
4. Measured and cut sills and leaders -	____	____
5. Measured and cut trimmers -	____	____
6. Measured and cut cripples -	____	____
7. Marked locations of leaders and sill on studs -	____	____
8. Nailed leader to studs -	____	____
9. Nailed sill to studs -	____	____
10. Nailed trimmers in place -	____	____
11. Nailed top and bottom cripples to studs -	____	____
12. Checked corners for square -	____	____
13. Adjusted corners, if necessary -	____	____

Criteria: Competence in the task will be recognized when the window opening is square; studs are plumb; and dimensions are as specified in plans.

Tools and Equipment:	**Resources:**

Duty:	Framing the Structure	**Duty No.** A **Task No.** 25

Task: Frame door opening using framing lumber and appropriate tools and equipment to provide a structurally sound opening in which doors are placed.

Achievement Indicators: The learner:	Yes	No
1. Calculated rough opening size from plans and specifications -	____	____
2. Located position of rough opening from plans -	____	____
3. Laid out calculations on sill plate and top plate -	____	____
4. Measured and cut studs -	____	____
5. Measured and cut header -	____	____
6. Measured and cut trimmer studs -	____	____
7. Measured and cut cripple studs -	____	____
8. Nailed studs in position -	____	____
9. Nailed header to studs -	____	____
10. Nailed trimmer studs under header -	____	____
11. Nailed cripple studs above header if required -	____	____

Criteria: Competence in the task will be recognized when the opening is placed as specified in plan; studs are plumb; nails are not spaced closer than one-half their length nor closer to edge of framing member than one-fourth their length.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure	**Duty No.** A **Task No.** 26

Task: Frame exterior walls using studs framing lumber to provide structural support for interior and exterior coverings and roof structure.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans for structural details -	____	____
2. Determined the function of the wall -	____	____
3. From floor plan, established the sequence of assembly -	____	____
4. Laid out the bottom and top plates -	____	____
5. Moved top plate back on subfloor -	____	____
6. Laid on subfloor one stud for each regular stud as laid out on bottom plate -	____	____
7. Nailed top and bottom plates to ends of regular studs; made sure to watch layout marks and nailed studs on correct side using two 16d common nails in each end stud -	____	____
8. Placed wall opening assemblies in position and nailed to top and bottom plates -	____	____
9. Placed and nailed corner and intersecting partition posts to plate -	____	____
10. Squared wall section, wind braced if required, and applied sheathing as specified -	____	____

Criteria: Competence in the task will be recognized when the following standards apply: plates are marked to receive framing members, walls are cut to the specified length, framing members are positioned and nailed according to FHA specifications, and FHA minimum property standards for one- and two-family dwellings will be applicable for details not shown on prints.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 27

Task: Frame and align a partition wall using framing materials and appropriate tools and equipment to support interior wall coverings and roof structure.

Achievement Indicators:

The learner:	Yes	No
1. Checked plan -	____	____
2. Determined the function of the wall (interior bearing or non-bearing) -	____	____
3. From floor plan, established the sequence of assembly -	____	____
4. Laid out bottom and top plates -	____	____
5. Built up type of interior corner post needed -	____	____
6. Laid out and framed headers needed over openings -	____	____
7. Assembled, raised, fastened, and temporarily braced the wall -	____	____

Criteria: Competence in the task will be recognized when the wall is plumb, wall is the specified length, studs are correctly positioned and nailed and walls are straight and properly secured.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 28

Task: Install pocket door frame using lumber and appropriate tools and equipment to provide an opening for the door.

Achievement Indicators: The learner:	Yes	No
1. Assembled pocket door assembly per manufacturer's instruction -	____	____
2. Set unit in prepared opening plumb and level -	____	____
3. Fastened unit with nails shimming as required -	____	____

Criteria: Competence in the task will be recognized when the door is plumb and closes firmly against jam.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 29

Task: Construct post and beam framing using lumber and appropriate tools and equipment to provide structural support for interior and exterior wall coverings and roof structure.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans for post and beam placement -	____	____
2. Laid out and marked post placement on sill plates -	____	____
3. Determined number and specifications for posts and beams -	____	____
4. Selected posts and beams -	____	____
5. Measured and cut stock for posts -	____	____
6. Cut or constructed beams as required -	____	____
7. Installed posts and beams for -	____	____
Floor Framing		
a. Installed fasteners for posts as per plans and specifications -	____	____
b. Drilled posts to receive fasteners -	____	____
c. Centered posts-	____	____
d. Attached loosely -	____	____
e. Checked for plumb -	____	____
f. Secured posts permanently -	____	____
g. Added bearing blocks to posts -	____	____
h. Spliced beams -	____	____
i. Connected spliced beams with metal straps -	____	____
Wall Framing		
a. Measured and cut blocks for side wall center posts -	____	____
b. Toenailed center posts to edge joists and blocking -	____	____
c. Measured and cut studs -	____	____
d. Measured and cut top and bottom plates -	____	____

	Yes	No
e. Marked plates for stud locations -	_____	_____
f. Assembled wall components -	_____	_____
g. Lifted wall section into place -	_____	_____
h. Nailed wall section through bottom plate -	_____	_____
i. Straightened and braced wall -	_____	_____
j. Repeated steps f-i to complete all wall sections -	_____	_____
k. Installed diagonal bracing -	_____	_____
l. Secured top plates with steel strapping -	_____	_____
m. Installed blocking -	_____	_____
Roof Framing		
a. Checked plans for post spacing for ridgeboard -	_____	_____
b. Installed interior posts -	_____	_____
c. Cut ridgeboard members to length -	_____	_____
d. Positioned first section of ridgeboard on posts -	_____	_____
e. Fastened beam to post with framing anchors -	_____	_____
f. Positioned remaining sections of ridgeboard and fastened -	_____	_____
g. Connected ridgeboard members with gusset plates -	_____	_____
h. Checked plans for treatment of ridge and plate -	_____	_____
i. Determined length of rafter beams from plans -	_____	_____
j. Cut and notched all upper ends of rafter beams -	_____	_____
k. Cut and notched lower ends as required -	_____	_____
l. Marked beam locations on ridgebeam -	_____	_____
m. Positioned center rafter over wall post -	_____	_____
n. Toenailed center rafter in place -	_____	_____
o. Fitted rafter beam in position -	_____	_____

	Yes	No
p. Toenailed rafter beam in place -	___	___
q. Secured with beam hangers -	___	___
r. Attached rafter beam to plate with framing anchor -	___	___
s. Repeated steps o - r until all pairs of rafter beams were in place, working from center out -	___	___
t. Nailed metal strapping across tops of pairs of beams -	___	___

Criteria: Competence in the task will be recognized when the beams are connected with metal gusset plates and secured to posts with framing anchors in roof framing.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure	**Duty No.** A **Task No.** 30

Task: Install metal studs using appropriate tools and equipment to provide support for interior and exterior wall coverings and roof structure.

Achievement Indicators: The learner:

	Yes	No
1. Laid out metal studs as specified in plans -		
2. Fastened bottom and top metal track plate -		
3. Cut the studs to fit between top and bottom metal track plates -		
4. Fastened studs to metal track plates -		
5. Checked stud spacing -		
6. Checked plumb -		

Criteria: Competence in the task will be recognized when the studs are plumb and fastened to the top and bottom track plates with self-tapping screws; and track plate is securely fastened.

Tools and Equipment:	**Resources:**

Duty: Framing the Struture

Duty No. A

Task No. 31

Task: Install purlin using framing lumber and appropriate tools and equipment to stiffen walls.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans and specifications for rafter support -	_____	_____
2. Selected purlin and tracing stock -	_____	_____
3. Measured and cut purlin(s) to length -	_____	_____
4. Laid out and marked purlin(s) in rafter plate(s) -	_____	_____
5. Notched rafters as required -	_____	_____
6. Fitted purlin in positioned on marks -	_____	_____
7. Nailed through purlin into rafter -	_____	_____
8. Measured and cut bracing -	_____	_____
9. Laid out and marked bracing on rafter plate -	_____	_____
10. Nailed bracing in place -	_____	_____
11. Repeated steps 6-10 until all purlins are installed -	_____	_____

Criteria: Competence in the task will be recognized when the support wall is positioned as in plan, and rafters are notched around purlin with no gaps.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 32

Task: Install firestops using framing lumber and appropriate tools and equipment to limit spread of fire.

Achievement Indicators: The learner: Yes No

1. Boxed in vital points with 1" boards and filled boxes with incombustible material - _____ _____
2. Cut 2 x 4 blocks between wall studs - _____ _____
3. Cut blocking (2 x 8 or 2 x 10) between floor joists - _____ _____

Criteria: Competence in the task will be recognized when the following standards apply, firestops are at required length, firestops are firmly secured in place, and firestops are located as specified.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 33

Task: Install plywood corner bracing using plywood and framing tools to provide wind bracing and stiffen wall section.

Achievement Indicators: The learner: Yes No

1. Cut plywood to size - ____ ____
2. Nailed plywood into place - ____ ____

Criteria: Competence in the task will be recognized when the plywood corner bracing is installed correctly.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 34

Task: Install diagonal bracing where necessary using 1 x 4s or metal wind bracing and framing tools to stiffen wall section.

Achievement Indicators: The learner:	Yes	No
1. Checked wall plumb and adjusted if necessary -	____	____
2. Measured diagonal length at wall corner -	____	____
3. Cut a 2" x 4" to measured length with 45' angle cut at each end -	____	____
4. Held 2" x 4" in place and marked each stud -	____	____
5. Set circular saw blade to depth equal to thickness of wind brace -	____	____
6. Cut saw kerfs into studs along each mark -	____	____
7. Knocked out portion between kerfs on each stud -	____	____
8. Inserted diagonal brace into channel and nailed into each stud -	____	____

Criteria: Competence in the task will be recognized when the bracing is installed on exterior corners only, flush with exterior surface of wall.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 35

Task: Install exterior wall sheathing using sheathing of choice and framing tools to stiffen walls, insulate interior and provide backing for siding.

Achievement Indicators:

The learner:	Yes	No
1. Determined layout of sheathing from stud spacing -	____	____
2. Marked studs to receive seams -	____	____
3. Measured and cut sheathing to fit from corner edge to stud center -	____	____
4. Nailed first sheet in place -	____	____
5. Measured and cut rough openings as required -	____	____
6. Nailed subsequent sheets butting sides -	____	____
7. Measured and cut final sheet to be flush on outside corner -	____	____

Criteria: Competence in the task will be recognized when the sheathing is installed with no protrusions in openings or beyond corners.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 36

Task: Raise wall and install temporary bracing using student labor and appropriate tools and equipment and framing lumber to provide temporary support for wall.

Achievement Indicators: The learner:

	Yes	No
1. Selected stock for braces -	____	____
2. Measured and cut braces -	____	____
3. Located position of wall from plans and chalk line =	____	____
4. Lifted wall along line and nailed in place -	____	____
5. Placed brace in position -	____	____
6. Drove nail to hold brace -	____	____
7. Nailed temporary block in line with brace at points where brace touches floor -	____	____
8. Brought wall to plumb -	____	____
9. Nailed brace to temporary block to hold wall in place -	____	____
10. Checked plumb -	____	____
11. Repeated steps 4-9 for diagonal brace -	____	____

Criteria: Competence in the task will be recognized when the wall is straight and plumb and located according to plan.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 37

Task: Install ceiling joists using framing lumber and appropriate tools and equipment to provide strength for ceiling finish.

Achievement Indicators:

The learner:	Yes	No
1. Determined length and spacing of joists from plans -	____	____
2. Selected and measured joist stock -	____	____
3. Cut to length squaring one end -	____	____
4. Calculated angle of joist ends -	____	____
5. Cut and trimmed all joists -	____	____
6. Calculated location and spacing of joists -	____	____
7. Laid out and marked on cap and rafter plates -	____	____
8. Set second joist from corner in position -	____	____
9. Toenailed through sides of joists nailing outer ends first -	____	____
10. Lined up each joist at rafter plate, marked and toenailed -	____	____
11. Cut and installed firestops if required -	____	____

Criteria: Competence in the task will be recognized when the joists are parallel and spaced as specified in plan.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 38

Task: Install ceiling joists' strongbacks using framing lumber and appropriate tools and equipment to stiffen the ceiling joists.

Achievement Indicators: The learner:	Yes	No
1. Checked drawings and specifications -	____	____
2. Fastened material together as specified -	____	____
3. Positioned strongback at correct location -	____	____
4. Secured strongback to ceiling joists as required -	____	____

Criteria: Competence in the task will be given when the following standards apply to the work: strongbacks are cut to the required length, strongback are positioned above and are perpendicular to ceiling joist, strongbacks are tied to the joists with metal straps.

Tools and Equipment:

Resources:

Duty:	Framing the Structure	**Duty No.** A **Task No.** 39

Task: Install backing nailers for lathe using framing lumber and appropriate tools and equipment to provide a nailing surface.

Achievement Indicators: The learner:

	Yes	No
1. Nailed backing into double plate of wall, nailing well -	____	____
2. Backing hung over double plate approximately 1 to 2 inches -	____	____

Criteria: Competence in the task will be recognized when the backing nailers are installed properly.

Tools and Equipment:

Resources:

Duty:	Framing the Structure	**Duty No.**	A
		Task No.	40

Task: Construct roof truss using blue prints, framing lumber and appropriate tools and equipment to provide structural support for roof and ceiling coverings.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans and specifications for building dimensions-		
2. Calculated span, run, rise, and roof pitch -		
3. Snapped chalk lines for two top chords and one bottom chord -		
4. Laid out truss pattern -		
5. Calculated plumb cut and tailed cuts for top and bottom chords -		
6. Cut top chords -		
7. Cut bottom chord -		
8. Calculated length of tension webs -		
9. Cut tension webs -		
10. Calculated length of compression webs -		
11. Cut compression webs -		
12. Assembled truss and pined with nails, truss clips or connector plates -		
13. Cut peak and intermediated gussets for both sides of truss -		
14. Nailed gussets to peak and bottom chord on both sides of truss -		

Criteria: Competence in the task will be recognized when the truss forms rigid framework for load support over span, tail cuts are plumb, and peak and intermediate gussets are nailed to both side of truss.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 41

Task: Calculate the rise and run of a common roof using teacher specified method and appropriate tools and equipment to determine roof pitch necessary to lay out roof.

Achievement Indicators: The learner:

	Yes	No
1. Determined the pitch into inches rise per foot run -	____	____
2. Calculated the run of the roof from plate to center of building (one-half the span) -	____	____
3. Multiplied the inches rise per foot run times the number of feet in the run of the roof to determine to the total rise of roof -	____	____

$$\frac{\text{Unit Rise}}{\text{Unit Span}} = \text{pitch}$$

Example: Unit Rise = 8, Unit Span = 24 $\quad \frac{8}{24} = \frac{1}{3}$ Pitch

	Yes	No
4. Calculated slope $\frac{\text{Unit Rise}}{12} = 8''$ $= 8/12$ slope -	____	____

Criteria: Competence in the task will be recognized when the calculations are correct.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 42

Task: Determine length of rafters using teacher specified method and appropriate tools and equipment to layout proper rafter pattern.

Achievement Indicators: The learner:

	Yes	No
1. Determined kinds of rafters needed -	____	____
2. Calculated rise per foot run -	____	____
3. Determined run -	____	____
4. Added for overhang -	____	____
5. Multiplied run times length of common rafter per foot run -	____	____
6. Subtracted one half the thickness of the ridgeboard -	____	____

Criteria: Competence in the task will be recognized when the items on the instructor's checklist are acceptably completed.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 43

Task: Layout and install common rafters using framing lumber and appropriate tools and equipment to provide support for roof plywood and roofing materials.

Achievement Indicators: The learner:

		Yes	No
1.	Measured width of building for span -	____	____
2.	Divided span in half for run -	____	____
3.	Calculated length of rafter using run, rise and framing square -	____	____
4.	Placed one piece of rafter stock on sawhorses -	____	____
5.	Laid out and marked rafter pattern -	____	____
6.	Drew bird's mouth -	____	____
7.	Checked plans for size of rafter overhang -	____	____
8.	Laid out overhang -	____	____
9.	Marked tail cut -	____	____
10.	Checked cornice details on plans -	____	____
11.	Shortened rafter at ridge -	____	____
12.	Cut rafter on marks -	____	____
13.	Labled rafter as pattern -	____	____
14.	Cut pair of rafters from patterns -	____	____
15.	Checked fit of rafters at ridge, plate and tail cut -	____	____
16.	Cut all rafters -	____	____
17.	Nailed rafters to plate and ridgeboard -	____	____

Criteria: Competence in the task will be recognized when the top cuts of common rafters fit ridgeboard, bird's fit top plate, tail cut is plumb, and rafter projection is as specified on plans.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 44

Task: Layout and install ridgeboard using framing lumber and appropriate tools and equipment to provide rigid support for upper end of rafters.

Achievement Indicators: The learner:

	Yes	No
1. Determined length of ridgeboard from plans -	____	____
2. Laid out and marked rafter spacing -	____	____
3. Measured and cut ridgeboard -	____	____
4. Positioned ridgeboard across framing members -	____	____
5. Installed rafters to ridgeboard alternating sides and space rafters according to plans -	____	____
6. Positioned rafter-ridgeboard assembly -	____	____
7. Plumb and braced rafter-ridgeboard assembly -	____	____
8. Adjusted, if necessary -	____	____

Criteria: Competence in the task will be recognized when the ridgeboard is straight and level, and rafter crowns are turned upward.

Tools and Equipment:

Resources:

95

Duty: Framing the Structure

Duty No. A

Task No. 45

Task: Install hip rafters using framing lumber and appropriate tools and equipment to provide support for jack rafters.

Achievement Indicators:

The learner:	Yes	No
1. Determined rafter specifications from plans -		
2. Calculated unit of rise and units of run -		
3. Calcualted length of hip rafter with rafter tables -		
4. Laid out and marked side cuts of hip rafter with framing square -		
5. Laid out and marked plumb cuts of hip rafter -		
6. Measured and marked height of common rafter from seat cut to top of rafter -		
7. Transferred height of commom rafter to hip rafter -		
8. Laid out bird's mouth rafter's -		
9. Subtracted drop of hip rafter from bird's mouth -		
10. Laid out projection of hip rafter -		
11. Cut hip rafter -		
12. Nailed rafter in place -		

Criteria: Competence in the task will be recognized when the hip rafter is nailed in place.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 46

Task: Install hip jacks rafters using framing materials and appropriate tools and equipment to provide support for roof plywood and roofing materials.

Achievement Indicators: The learner:	Yes	No
1. Determined rafter specifications from plans -	____	____
2. Calculated unit of rise from common rafters -	____	____
3. Calculated common difference in length of jacks from rafter tables -	____	____
4. Laid out and marked side cuts for jacks on edge of rafter -	____	____
5. Subtracted 1/2 45' thickness of hip rafter from jack marker -	____	____
6. Squared line across rafter and marked center point -	____	____
7. Laid out and marked seat cut and projection from common rafter -	____	____
8. Measured and cut first jack rafter -	____	____
9. Subtracted common difference from first jack rafter -	____	____
10. Laid out, marked and cut remaining jack rafters -	____	____
11. Nailed jacks to hips in pairs -	____	____
12. Checked alignment of jack rafters with common and hip rafters -	____	____

Criteria: Competence in the task will be recognized when the top and ends of jacks are aligned with common and hip rafters.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 47

Task: Install cripple jack rafters using framing materials and appropriate tools and equipment to provide support for plywood deck and roofing materials.

Achievement Indicators: The learner:

	Yes	No
1. Determined specifications from plans -	____	____
2. Calculated rise and run of roof -	____	____
3. Calculated length of cripple jack rafter -	____	____
4. Laid out and marked side cuts on top and bottom of cripple jack rafter -	____	____
5. Laid out and marked hip and valley rafters to receive cripple jacks -	____	____
6. Measured and cut cripple jack rafters -	____	____
7. Nailed cripple jacks top and bottom -	____	____
8. Checked alignment, spacing and nailing of cripple jack rafters -	____	____

Criteria: Competence in the task will be recognized when all rafters are nailed in place.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 48

Task: Install valley rafters using framing lumber and appropriate tools and equipment to provide support for valley jack rafters, roof plywood and roofing materials.

Achievement Indicators: The learner: Yes No

1. Determined rafter specifications from plans - _____ _____
2. Calculated unit of rise and units of run from common and/or hip rafters - _____ _____
3. Calculated length of valley rafter from rafter tables - _____ _____
4. Laid out and marked side cuts of top of rafter valley - _____ _____
5. Subtracted 1/2 45' thickness of ridge board from side cut of valley rafters - _____ _____
6. Laid out and marked top plumb cuts of valley rafters - _____ _____
7. Measured height of common rafter from seat cut to top of common rafter - _____ _____
8. Transferred common rafter height to valley rafter - _____ _____
9. Laid out and marked bird's mouth cut for plate - _____ _____
10. Laid out and marked valley rafter projection to match common rafters - _____ _____
11. Measured and cut valley rafters - _____ _____
12. Nailed valley rafters in place starting at seat cut - _____ _____
13. Checked valley rafter alignment with top and ends of common and/or hip rafters - _____ _____

Criteria: Competence in the task will be recognized when rafters are nailed in place.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 49

Task: Install valley jack rafters using framing lumber and appropriate tools and equipment to provide support for jack rafters.

Achievement Indicators:

The learner:	Yes	No
1. Determined rafter spacing from plans -	____	____
2. Laid out and marked spacing on valley rafter -	____	____
3. Laid out and marked spacing on valley rafter -	____	____
4. Measured length of valley jack rafter from longest point on valley rafter to top of ridgeboard -	____	____
5. Marked length on rafter board -	____	____
6. Calculated common difference -	____	____
7. Marked common difference from longest valley jack to next for all rafters -	____	____
8. Marked plumb cuts -	____	____
9. Cut top plumb cuts in pairs -	____	____
10. Calculated angle of side cut from rafter tables -	____	____
11. Made bottom plumb cuts at calculated angle in pairs -	____	____
12. Checked rafter fit and spacing -	____	____
13. Nailed all rafters in place -	____	____

Criteria: Competence in the task will be recognized when the rafters are attached properly and the rafters are not bowed.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure	**Duty No.** A **Task No.** 50

Task: Install gambrel roof rafters using framing lumber and appropriate tools and equipment to provide support for roof plywood and roofing materials.

Achievement Indicators: The learner:

	Yes	No
1. Laid out semicircle on large flat surface using 1/2 of the major building span as a radius -	____	____
2. Checked plans for height of primary rafters -	____	____
3. Laid out bottom and top cuts of primary rafters -	____	____
4. Cut bottom and top cuts of primary rafters -	____	____
5. Nailed primary rafters to double plate and purlin -	____	____
6. Braced primary rafters -	____	____
7. Measured length of secondary rafters from top of semicircle -	____	____
8. Laid out bird's-mouth and top cuts of secondary rafters -	____	____
9. Cut secondary rafters -	____	____
10. Nailed secondary rafters to purlins and ridgeboard -	____	____
11. Checked ends of primary and secondary rafters against semicircle -	____	____

Criteria: Competence in the task will be recognized when the ends of the primary and secondary rafters meet on a semicircle.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 51

Task: Construct intersecting gable roof using framing lumber and appropriate tools and equipment to provide support for roof plywood and roofing materials.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans for main roof -	____	____
2. Laid out common rafters for main roof -	____	____
3. Cut common rafters for main roof -	____	____
4. Measured and marked ridgeboard for main roof -	____	____
5. Cut ridgeboard for main roof -	____	____
6. Measured and marked ridgeboard for intersecting roof -	____	____
7. Cut ridgeboard for intersecting roof -	____	____
8. Laid out common rafters for intersecting roof -	____	____
9. Cut common rafters for intersecting roof -	____	____
10. Set rafters and nailed ridgeboard for main roof -	____	____
11. Located point of intersection on plans -	____	____
12. Set intersecting common rafters and nailed intersecting ridgeboard -	____	____
13. Measured and marked valley rafters -	____	____
14. Cut valley rafters -	____	____
15. Laid out valley rafters -	____	____
16. Nailed valley rafters -	____	____
17. Measured and marked valley jack rafters -	____	____
18. Cut valley jack rafters -	____	____
19. Nailed valley jack rafters -	____	____

Criteria: Competence in the task will be recognized when the rafters are located in accordance with the plans.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 52

Task: Frame roof opening using framing materials and appropriate tools and equipment to strengthen framed area around opening.

Achievement Indicators:

The learner:	Yes	No
1. Determined location and size of opening from plans -		
2. Laid out width of opening on both ridge and top plate -		
3. Measured and marked trimmer -		
4. Cut trimmer rafters -		
5. Nailed trimmer rafters -		
6. Laid out length of opening on rafters -		
7. Measured and marked headers -		
8. Marked location of tops of double headers -		
9. Cut headers -		
10. Beveled tops for chimney openings -		
11. Checked plans for plumb or right angle rafter set -		
12. Nailed headers -		
13. Measured and marked tail rafters -		
14. Cut tail rafters -		
15. Nailed tail rafters at spacing specified on plans -		

Criteria: Competence in the task will be recognized when all work is done to acceptable standards.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 53

Task: Frame dormer using framing materials and appropriate tools and equipment to provide structural components for dormer.

Achievement Indicators: The learner:	Yes	No
1. Checked plans for width of dormer opening -		
2. Calculated length of dormer opening -		
3. Framed roof opening -		
4. Constructed dormer -		
Dormer without sidewalls		
1. Marked center line of dormer ridge and width of ridgeboard on upper header -		
2. Reversed plumb cut on end of ridgeboard at header -		
3. Trimmed other end of ridgeboard to fit -		
4. Marked rafter locations on ridgeboard -		
5. Calculated length of end rafters -		
6. Plumb cut end rafters at ridge -		
7. Beveled heel cut end rafters at header -		
8. Nailed end rafters to ridgeboard -		
9. Fitted dormer assembly -		
10. Toenailed dormer assembly to headers -		
11. Calculated length of valley rafters -		
12. Shortened valley rafters -		
13. Double checked cut each end of valley rafters -		
14. Nailed valley rafters -		
15. Nailed dormer valley jack rafters in pairs -		
Dormer with sidewalls		
1. Calculated length of corner posts using plans -		

	Yes	No
2. Measured and marked corner posts -		
3. Cut corner posts -		
4. Beveled lower ends of corner posts to slope of main roof -		
5. Nailed posts plumb -		
6. Measured and marked top plate -		
7. Cut top plate -		
8. Nailed top plate across posts -		
9. Marked locations of dormer studs on doubled rafters and on top plate and double header -		
10. Measured and marked dormer studs -		
11. Cut dormer studs -		
12. Measured and marked side rafter plate -		
13. Cut side rafter plates -		
14. Beveled one end of rafter plate to slope of main roof -		
15. Nailed side rafter plates and dormer studs -		
16. Measured and cut cap plate -		
17. Nailed cap plate -		
18. Measured and marked ridgeboard and two end rafters -		
19. Cut ridgeboard and two end rafters -		
20. Assembled ridgeboard and two cut end rafters -		
21. Did a heel cut or combination cut rafters -		
22. Calculated length of valley rafters and shape of cut at lower ends -		
23. Measured, marked and cut valley rafters -		
24. Nailed valley rafters -		
25. Measured and marked common rafters -		
26. Cut common rafters -		

	Yes	No
27. Nailed common rafters in pairs -	____	____
28. Measured and marked valley jack rafters -	____	____
29. Cut valley jack rafters -	____	____
30. Nailed valley jack rafters in pairs -	____	____
5. Nailed main roof valley jack rafters -	____	____

Criteria: Competence in the task will be recognized when the dormers with sidewalls have upper headers set at right angles to slope and lower headers are plumb.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 54

Task: Install collar beams using framing materials and appropriate tools and equipment to tie apposing rafters together to eliminate roof sag.

Achievement Indicators: The learner:

	Yes	No
1. Determined size, spacing, and height of collar beams -	____	____
2. Marked height on one side of rafters -	____	____
3. Chalked line between marks -	____	____
4. Repeated steps 2 and 3 on other side of rafters -	____	____
5. Measured span across opposite marks -	____	____
6. Cut one collar to span measurement for each rafter pair -	____	____
7. Nailed collars in places marked on rafters -	____	____

Criteria: Competence in the task will be recognized when the tops of collar beams are flush with or slightly below tops of rafters.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 55

Task: Frame roof saddle above chimney using framing material and appropriate tools and equipment to provide proper rain water run off.

Achievement Indicators: The learner:

		Yes	No
1.	Determined width of saddle from plan -	____	____
2.	Measured length of ridgeboard -	____	____
3.	Cut ridgeboard to length with angle cut allowing angle to rest on present roof -	____	____
4.	Measured and cut valley strips -	____	____
5.	Calculated rafter lengths and angles -	____	____
6.	Laid out and marked rafters -	____	____
7.	Cut rafters to length -	____	____
8.	Nailed ridge, saddle rafters, and valley strips together on ground -	____	____
9.	Lifted assembly into place behind chimney -	____	____
10.	Nailed through valley strips into original roof rafters -	____	____

Criteria: Competence in the task will be recognized when the saddle rests behind the chimney with no protrusions and is nailed into roof rafters.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 56

Task: Frame snub gable using framing materials and appropriate tools and equipment to complete roof.

Achievement Indicators: The learner:	Yes	No
1. Determined ridge length from plan -	____	____
2. Measured and marked ridge length -	____	____
3. Cut ridge -	____	____
4. Laid out and marked common rafters -	____	____
5. Cut common rafters -	____	____
6. Measured and marked studs for gable end -	____	____
7. Cut studs for gable end -	____	____
8. Measured and marked plates for gable end -	____	____
9. Cut plates for gable end -	____	____
10. Assembled gable end on ground -	____	____
11. Tacked gable end temporarily -	____	____
12. Plumb gable end -	____	____
13. Braced gable end -	____	____
14. Positioned ridge and nailed common rafters -	____	____
15. Measured and marked snub hip rafters -	____	____
16. Cut snub hip rafters -	____	____
17. Nailed snub hip rafters -	____	____
18. Measured and marked jack rafters -	____	____
19. Cut jack rafters -	____	____
20. Nailed jack rafters -	____	____
21. Measured and marked snub cripple jack rafters -	____	____
22. Cut cripple jack rafters -	____	____

	Yes	No
23. Nailed snub cripple jack rafters -	____	____
24. Nailed gable end -	____	____

Criteria: Competence in the task will be recognized when the snub gable pitch, and location must be as specified on plans.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 57

Task: Install gable studs using framing materials and appropriate tools and equipment to provide support for gable wall covering.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans and specifications -	____	____
2. Squared line across end wall double plate directly below center of gable -	____	____
3. Measured one-half of window or louver opening size on each side of center line and marked location for first two studs -	____	____
4. Laid out spacing for all studs using 16" O.C. -	____	____
5. Cut and installed two full-length studs -	____	____
6. Plumbed and marked length of all shorter studs -	____	____
7. Cut studs -	____	____
8. Nailed studs flush with outside of plates and rafters -	____	____

Criteria: Competence in the task will be recognized when the studs have the same slop as roof and are plumb and 16" O.C.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 58

Task: Install roof overhangs using framing materials and appropriate tools and equipment to comply with building plans for style of house.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans and specifications for overhang depth style -	____	____
2. Consulted teacher for proper method of framing overhang -	____	____
3. Nailed or sub-raked framing member -	____	____

Criteria: Competence in the task will be recognized when the framed to accepted roof load the pitch of a regular roof.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 59

Task: Install roof sheathing using 1/2" CDX plywood sheathing to provide a nailing base for roofing materials.

Achievement Indicators: The learner:

	Yes	No
1. Checked roof frame construction and nailing patterns -		
2. Erected scaffold -		
3. Measured and struck chalk line 4' up from end of rafters at each end of roof -		
4. Laid top of first row of sheathing at chalk line -		
5. Centered end joints on rafter -		
6. Nailed sheathing into rafters -		
7. Cut half sheet for second row -		
8. Nailed second row, breaking joints -		
9. Repeated steps 4-8, until entire roof is sheathed -		
10. Cut sheathing along hips -		

Criteria: Competence in the task will be recognized when the sheathing is laid with face grain perpendicular to rafters and there is a 1/2" clearance around chimney openings.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 60

Task: Estimate roofing materials using knowledge and appropriate tools and equipment to determine correct amount of roofing materials.

Achievement Indicators:

The learner:	Yes	No
1. Measured length of roof surface -	____	____
2. Measured height of roof surface -	____	____
3. Multiplied length by height to determine square feet -	____	____
4. Divided square feet by 100 to determine number of squares -	____	____
5. Measured linear feet of hips and ridges -	____	____
6. Added 1 square for each 100 feet of hips and ridges -	____	____
7. Measured linear feet of valleys for roll flashing -	____	____
8. Counted and measured roof vents -	____	____
9. Counted and measured roof stacks -	____	____
10. Recorded calculated estimates to be used in ordering -	____	____

Criteria: Competence in the task will be recognized when the estimate for the materials covers entire roof area, with no material excess.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 61

Task: Install roofing felt using 15 pound felt and appropriate tools and equipment to provide water resistent base for roof.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans and specifications for size and weight of felt paper -		
2. Inspected sheathing for complete patterns and protruding nails -		
3. Hammered any protruding nails into sheathing -		
4. Cleaned sheathing of foreign materials -		
5. Measured and cut roofing felt to length of roof -		
6. Rolled felt across edge of roof -		
7. Nailed every 16" - 24" across top -		
8. Nailed ever 12" across middle -		
9. Nailed every 4" across sides and bottom -		
10. Rolled subsequent rows with 2" - 4" overlap -		
11. Measured, cut, rolled and nailed remaining felt -		
12. Overlaped peaks -		

Criteria: Competence in the task will be recognized when the felt is installed lightly, with a 2" lap at horizontal joints and 4" lap at end joints.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 62

Task: Install metal drip edge using appropriate tools and equipment to allow water to drip off roof away from house trim.

Achievement Indicators: The learner:

	Yes	No
1. Placed drip edge around roof parameter one length at a time -	____	____
2. Lapped drip edge approximately 1/2" -	____	____
3. Sighted the drip edge prior to nailing it -	____	____
4. Nailed drip edge every 16"-24" -	____	____

Criteria: Competence in the task will be recognized when the drip edge is installed and allows water flow away from the house.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 63

Task: Install valley flashing using appropriate materials, tools and equipment to provide leak proof roofing at valley.

Achievement Indicators: The learner:

	Yes	No
1. Struck chalk line 1/2 width of flashing from center of valley -	____	____
2. Tacked end of roll to lower end of valley -	____	____
3. Rolled flashing up valley with mineral surface up -	____	____
4. Aligned edge of flashing with chalk line -	____	____
5. Nailed along edges -	____	____
6. Folded flashing over ridge -	____	____
7. Cut with snips -	____	____
8. Tared edges -	____	____

Criteria: Competence in the task will be recognized when the flashing is flat and without nail holes or creases.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure	**Duty No.** A **Task No.** 64

Task: Install composite strip shingles using appropriate tools and equipment to apply final leak proof layer to roof.

Achievement Indicators: The learner:

		Yes	No
1.	Chalked line 11" from front edge of roof -	____	____
2.	Chalked subsequent parallel lines at 5" increments up roof -	____	____
3.	Chalked vertical lines 35" and 29" from edge of roof -	____	____
4.	Positioned first shingle upside down at corner with edges butting 35" and 11" lines -	____	____
5.	Nailed shingle with 3 nails through tabs -	____	____
6.	Butted second shingle (upside down) to side of third shingle along 11" lines -	____	____
7.	Nailed second shingle (upside down) to side of third shingle along 11" line -	____	____
8.	Repeated steps 6 and 7 until first row was complete -	____	____
9.	Cut 6" off edge of first shingle for second row -	____	____
10.	Positioned shingle right side up directly over first row butting edges to 29" and 11"lines -	____	____
11.	Nailed shingle with four nails 2" from each edge and above each slot -	____	____
12.	Butted subsequent shingles to side of preceding shingle and nailed as specified in step 11 -	____	____
13.	Cut starter shingles to stair step rows -	____	____
14.	Installed whole shingles after each starter continuing to apply in a stair step fashion -	____	____

Criteria: Competence in the task will be recognized when the shingles lie flat with vertical slots lined up straight on alternate rows, and horizontal rows are straight with 5" exposure.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 65

Task: Install composite shingles - valley using appropriate tools and equipment to provide leak proof layer of shingles to valley area.

Achievement Indicators: The learner:

	Yes	No
1. Struck chalk line 2" from center of flashed valley -		
2. Positioned shingle overlapping valley on lowest row -		
3. Marked top and bottom of shingle at chalk line -		
4. Cut shingle between marks using straightedge and utility knife -		
5. Repositioned shingle -		
6. Nailed shingle above slots -		
7. Repeated steps 2-6 until valley was completed -		

Criteria: Competence in the task will be recognized when the shingle line is straight, even, and parallel to valley, and shingles are nailed above slots without piercing flashing.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 66

Task: Install composite shingles around roof opening using appropriate tools and equipment to leak proof roof opening area.

Achievement Indicators:

The learner:	Yes	No
1. Tucked last full row of shingles under flashing at bottom of roof opening -	____	____
2. Measured distance from last full shingle of next row to opening -	____	____
3. Cut shingle to measured length -	____	____
4. Positioned shingle on roof -	____	____
5. Nailed shingle -	____	____
6. Placed step flashing overlapping back of shingle -	____	____
7. Nailed top and bottom corners of step flashing to roof -	____	____
8. Repeated steps 2-7 along both sides of opening -	____	____
9. Continued full row of shingles over top of opening -	____	____
10. Applied roofing tar to any exposed nails at bottom of opening -	____	____

Criteria: Competence in the task will be recognized when the shingles are tight to roof opening, and do not leak.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 67

Task: Install bonding shingles over dormer or roof appendage using appropriate tools and equipment to leak proof dormer or roof appendage and match shingles to main roof.

Achievement Indicators: The learner:

	Yes	No
1. Shingled roof on one side of appendage -	____	____
2. Extended chalk line from top shingle row across roof above appendage -	____	____
3. Measured 5" increments from chalk line down to bottom edge of roof on other side of appendage -	____	____
4. Measured 3' increments across chalk line starting from last full shingle -	____	____
5. Chalked horizontal line at each 5" increment -	____	____
6. Chalked vertical line at 3' increment -	____	____
7. Counted number 5" lines, excluding extended line above appendage -	____	____
8. Started bottom row at vertical chalk line if number of 5" lines is even -	____	____
9. Applied shingles starting at bottom row 6" to either side of vertical chalk line if number of 5" lines is odd -	____	____

Criteria: Competence in the task will be recognized when the rows and columns of shingles are straight.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 68

Task: Install composite shingles ridge cap using appropriate tools and equipment to provide a decorative leak proof finish to roof ridge.

Achievement Indicators:

The learner:	Yes	No
1. Cut shingles into individual 12" wide tabs -		
2. Chalked lines 6" from ridges and peaks -		
3. Positioned first shingle tab along chalk line at bottom hip -		
4. Cut edges of first shingle to conform with roof -		
5. Nailed with two roofing nails above exposure line -		
6. Positioned next shingle tab along chalk line overlapping previous shingle leaving 5" exposure -		
7. Nailed as specified in step 5 -		
8. Repeated steps 6-7 until hip ridge was complete -		
9. Repeated steps 3-8 until all hip ridges were complete -		
10. Repeated steps 3-8 for all peak ridges -		
11. Cut back off final shingle so that only exposure area remained -		
12. Face-nailed final shingle -		
13. Covered nails with roofing tar -		

Criteria: Competence in the task will be recognized when the ridge cap is straight and overlapped equally on each side of ridges, and all exposed nails are covered with tar.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure	**Duty No.** A
	Task No. 69

Task: Install wood shingles/shakes using appropriate tools and equipment to provide a decorative leak proof finish to house.

Achievement Indicators: The learner:

		Yes	No
1.	Positioned first shingle of bottom row with 1" overhang at gutter and rake -		
2.	Nailed shingle with two nails -		
3.	Positioned second shingle along side first shingle with ½" gap between shingles and 1" overhang at gutter -		
4.	Nailed shingle as specified in step 2 -		
5.	Repeated steps 3 and 4 until first row was completed -		
6.	Installed second row directly over first row using steps 1-5 -		
7.	Chalked line across row of shingles at intended exposure -		
8.	Rolled strip of felt paper across top of shingle row above exposure line -		
9.	Installed next row of shingles along chalk line as in steps 1-5 -		
10.	Split last shingle in each course to roof edge -		
11.	Repeated steps 7-9 for subsequent row until roof was completed -		

Criteria: Competence in the task will be recognized when the shingles cover the roof area with ½" spaced between, and joints are staggered.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 70

Task: Install wood shingles/shakes on valley using appropriate tools and equipment to provide a decorative leak proof finish to the valley area.

Achievement Indicators: The learner:

	Yes	No
1. Chalked line 2" from the center of valley -	____	____
2. Positioned shingle at bottom row overlapping valley -	____	____
3. Marked shingle at top and bottom at chalk line -	____	____
4. Cut shingle between marks with crosscut saw -	____	____
5. Repositioned shingle -	____	____
6. Fastened shingle with two nails -	____	____
7. Repeated steps 2-6 until valley was shingled -	____	____

CAUTION: Do not nail through flashing. If shingle has no space for nailing without flashing beneath, fasten shingle with roofing tar.

Criteria: Competence in the task will be recognized when the shingles are straight and parallel to center of valley with no nails piercing valley flashing.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 71

Task: Install wood shingles/shakes around roof opening using appropriate tools and equipment to provide a leak proof finish around the roof opening.

Achievement Indicators: The learner:

		Yes	No
1.	Tucked last full row of shingles under flashing at bottom of roof opening -	____	____
2.	Measured distance from last full shingle to roof opening on the next row -	____	____
3.	Cut shingle to size -	____	____
4.	Positioned shingles on roof -	____	____
5.	Nailed shingle with two nails -	____	____
6.	Placed step flashing overlapping back of shingles -	____	____
7.	Nailed top and bottom corners of step flashing -	____	____
8.	Repeated steps 2-7 along both sides of opening -	____	____
9.	Continued full row of shingles over top of opening -	____	____
10.	Applied roofing tar to any exposed nails at bottom of opening -	____	____

Criteria: Competence in the task will be recognized when the shingles are tight to roof opening and there is no leak.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 72

Task: Install wood shingles/shakes-ridge cap using appropriate tools and equipment to provide a decorative seal to roof ridge.

Achievement Indicators: The learner: Yes No

1. Chalked lines on each side of ridge at intended shingle exposure - _____ _____
2. Cut strip of felt paper 2" narrower than distance between chalk lines - _____ _____
3. Overlapped ridge with felt paper - _____ _____
4. Sat two shakes at bottom of hip ridge along chalk line - _____ _____
5. Marked sizes of shingles to peak - _____ _____
6. Split shingle to size - _____ _____
7. Nailed each shingle with two roofing nails above exposure line - _____ _____
8. Repeated steps 4-7 until hip ridge was complete - _____ _____
9. Repeated steps 1-7 until all hip ridges were complete - _____ _____
10. Repeated steps 1-7 until all peak ridges were complete - _____ _____
11. Cut back final two shingles so that only exposure remains - _____ _____
12. Face-nailed final two shingles - _____ _____
13. Covered nails with roofing tar - _____ _____

Criteria: Competence in the task will be recognized when the shakes are straight, overlapped equally on each side of ridge, and do not leak.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 73

Task: Install chimney flashing using appropriate tools and equipment to leak proof the joint between chimney and roof.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans and specifications -	____	____
2, Placed L-shaped flashing along bottom of chimney extending 6" past each side of chimney -	____	____
3. Cut flashing along vertical edge of chimney and fold flaps down to roof surface along side of chimney -	____	____
4. Placed L-shaped flashing along sides of chimney extending 6" beyond top and bottom -	____	____
5. Folded bottom extensions over 45' to roof -	____	____
6. Cut flashing along top vertical edge of chimney and fold flaps down to roof surface across top of chimney -	____	____
7. Placed L-shaped flashing across top of chimney extending 6" past each side -	____	____
8. Folded side extensions over 45' to roof -	____	____
9. Placed counter flashing to top, bottom and sides of chimney -	____	____
10. Cut counter flashing to follow mortar joints 8"-12" from roof surface -	____	____
11. Nailed counter flashing into mortar joints -	____	____
12. Tarred all edges and joints -	____	____

Criteria: Competence in the task will be recognized when the flashing diverts water away from chimney with tar covering all joints.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 74

Task: Install roof vent using appropriate tools and equipment to provide adequate ventilation to attic area.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans and specifications -	_____	_____
2. Cut opening in roof to size -	_____	_____
3. Placed roof vent over opening -	_____	_____
4. Drove two nails into top corners of vent flange -	_____	_____
5. Ran lower rows of shingles underneath bottom flange of vent -	_____	_____
6. Nailed bottom corners of vent flange -	_____	_____
7. Cut upper rows of shingles around vent with utility knife -	_____	_____
8. Applied roof cement around all edges -	_____	_____

Criteria: Competence in the task will be recognized when the roof vent allows air to enter attic space, but prevents water from entering, and roofing cement is applied around base of vent.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 75

Task: Install ridge vent using appropriate tools and equipment to vent attic area.

Achievement Indicators: The learner:

	Yes	No
1. Removed shingles from ridge -	____	____
2. Cut sheathing back 1" from each side of peak with circular saw -	____	____
3. Chalked line 3" from peak -	____	____
4. Set ridge vent(s) along chalk line -	____	____
5. Cut last ridge vent to length with hack saw -	____	____
6. Connected ridge vents with slip connector -	____	____
7. Plugged ends of ridge vents with end caps -	____	____
8. Nailed ridge vents ever 4" along both sides behind splash guard -	____	____

Criteria: Competence in the task will be recognized when the ridge vent is aligned with the ridge and allows air to circulate in rafters.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 76

Task: Install skylight using appropriate tools and equipment to provide a leak proof light and ventilation source through roof framing.

Achievement Indicators: The learner:	Yes	No
1. Checked plans and specifications for skylight location -		
2. Cut rafters under proposed skylight -		
3. Head off rafters to desired rough opening -		
4. Built 2 x 6 box curb with inside dimensions equal to rough opening -		
5. Toenailed curb to roof over opening -		
6. Flashed bottom, sides and top of curb -		
7. Tarred joints of flashing -		
8. Placed continuous bead of tar around top perimeter of curb -		
9. Positioned skylight over curb -		
10. Fastened skylight to curb as specified by manufacturer -		

Criteria: Competence in the task will be recognized when the skylight does not leak and all flashing joints are tarred.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 77

Task: Install built-up roofs using appropriate tools and equipment to provide a leak proof finish to roof area.

Achievement Indicators: The learner:	Yes	No
1. Checked the plans and manufacturer's specifications for detailed information critical to the installation -	____	____
2. Installed metal gravel guards following manufacturer's specifications -	____	____
3. If underside of roof deck was finished ceiling, installed one layer of unsaturated building paper -	____	____
4. Applied two dry plies of 15 lb. felt -	____	____
5. Applied three successive layers of asphalt-saturated felt paper -	____	____
6. Applied a top layer of hot asphalt over the top surface of approximately 65 lbs. per 100 sq. ft -	____	____
7. Applied a layer of crushed slag or pea gravel over the top coat of asphalt at the rate of 300 lbs. per 100 sq. ft. -	____	____

Criteria: Competence in the task will be recognized when the materials are installed for a built-up roof.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 78

Task: Install roll roofing using appropriate tools and equipment to provide a decorative leak proof finish to low pitch roofs.

Achievement Indicators: The learner:

	Yes	No
1. Applied 15 lb. felt over lapping according to industry standards -	____	____
2. Applied half lap roll roofing according to manufacutrer's specifiecations -	____	____

Criteria: Competence in the task will be recognized when the roofing is installed according to standards.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 79

Task: Frame built-up stringer using appropriate tools and equipment to provide access to adjacent floor levels.

Achievement Indicators: The learner: Yes No

1. Measured distance between floors to obtain rise - ____ ____
2. Calcualted number of steps - ____ ____
3. Calculated tread width - ____ ____
4. Multiplied tread width by number of steps to obtain optimum total run or stringer length - ____ ____
5. Laid out stairs on stringer with steel square using previous calculations - ____ ____
6. Cut out stringer to fit risers and treads forming carriage stringer - ____ ____
7. Measured and cut solid or trimmer stringer as per specifications - ____ ____
8. Nailed trimmer stringer to carriage stringer - ____ ____

Criteria: Competence in the task will be recognized when the steps are cut as specified.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 80

Task: Frame cleated stair stringer using appropriate tools and equipment to provide access to adjacent floor levels.

Achievement Indicators: The learner: Yes No

1. Measured distance between floors to obtain rise - ____ ____
2. Calculated number of steps - ____ ____
3. Calculated tread width - ____ ____
4. Multiplied tread width by number of steps to obtain optium total run - ____ ____
5. Laid out stairs on stringer with steel square using previous calculations - ____ ____
6. Selected and cut one cleat for each step, equal in length to tread width - ____ ____
7. Nailed cleats in place under tread lay out marks - ____ ____

Criteria: Competence in the task will be recognized when the cleats are nailed securely and positioned as specified.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 81

Task: Construct open riser stairs using appropriate tools and equipment to provide access to adjacent floor levels.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans for stairway detail -	____	____
2. Measured rise and run of stairway -	____	____
3. Calculated size, number, and spacing of treads -	____	____
4. Calculated length of stringers -	____	____
5. Measured and cut stringers to length -	____	____
6. Verified level of upper floor -	____	____
7. Marked tread placement on stringers -	____	____
8. Cut out stringer for treads -	____	____
9. Measured and cut treads to size -	____	____
10. Nailed treads to stringer -	____	____
11. Lifted stairs into position -	____	____
12. Checked for level and plumb -	____	____
13. Adjusted if necessary -	____	____
14. Attached stairs to stairwell framing -	____	____

Criteria: Competence in the task will be recognized when the stairway is level and nailed securely.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 82

Task: Construct box stairs using appropriate tools and equipment to provide access to adjacent floor levels.

Achievement Indicators: The learner:

		Yes	No
1.	Checked plans for stairway treatment -		
2.	Checked level of upper floor -		
3.	Calculated rise and run of stairway -		
4.	Calculated length of stringers -		
5.	Marked floor line on stringer -		
6.	Marked notch for kickplate -		
7.	Marked nosing line on exposed stringer face -		
8.	Marked tread locations on stringer -		
9.	Marked stringer upper end to fit over header -		
10.	Marked plumb cuts -		
11.	Cut stringer ends -		
12.	Fitted in position -		
13.	Set routing template to dimensions -		
14.	Clamped template into position along each tread line -		
15.	Routed out shape of tread, riser and wedges at each mark -		
16.	Reversed template and repeated steps 14-15 for second stringer -		
17.	Nailed stringers temporarily in place -		
18.	Checked plumb and level and adjusted -		
19.	Nailed stringers in place -		
20.	Calculated tread and riser lengths -		
21.	Measured and cut treads and risers -		

	Yes	No
22. Measured and cut wedges to length -	____	____
23. Slid treads into grooves from underneath stairway working downstairs -	____	____
24. Fitted riser into tread groove from above -	____	____
25. Shiplaped tread from below -	____	____
26. Coated short wedges with glue -	____	____
27. Drove wedges in place to hold risers -	____	____
28. Coated long wedges with glue -	____	____
29. Drove wedges into place to hold treads -	____	____
30. Tacked wedges until glue dried -	____	____
31. Nailed wedges in place -	____	____
32. Glued edge of bottom riser in place -	____	____
33. Nailed into stringer ends -	____	____
34. Selected and glued scrap blocks where risers fit into heads -	____	____
35. Installed cove molding under nosing of treads if required -	____	____

Criteria: Competence in the task will be recognized when the stairway is level and nailed securely.

Tools and Equipment:	**Resources:**

Duty: Framing the Structure

Duty No. A

Task No. 83

Task: Install prefabricated stairs using appropriate tools and equipment to provide access to adjacent floor levels.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans for specifications for stair placement -	____	____
2. Marked plumb cuts on stringer ears -	____	____
3. Cut all ears as marked -	____	____
4. Lifted stair unit into place -	____	____
5. Nailed through underside of stringer into wall studs -	____	____
6. Secured at landings with nails -	____	____

Criteria: Competence in the task will be recognized when the stairs are nailed securely.

Tools and Equipment:

Resources:

Duty: Framing the Structure

Duty No. A

Task No. 84

Task: Install backing for hanging fixture and cabinet using appropriate tools and equipment to provide a nail or screw base to which fixtures and cabinets are fastened.

Achievement Indicators: The learner:

	Yes	No
1. Determined final placement of cabinet or fixture from plans -	____	____
2. Measured height at which screws for holding fixture or cabinets will be placed -	____	____
3. Transferred measurement to rough studs -	____	____
4. Cut blocks to fit between studs -	____	____
5. Nailed blocks in place at desired height -	____	____

Criteria: Competence in the task will be recognized when the backing is at the specified height and provides secure backing for wood screws.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 85

Task: Construct single pole scaffold using appropriate tools and equipment to provide a safe, efficient work space above ground level.

Achievement Indicators: The learner:

	Yes	No
1. Determined height and width of working platform required -	____	____
2. Calculated length of and number of blocks and ledgers -	____	____
3. Measured and cut blocks -	____	____
4. Measured and cut ledgers -	____	____
5. Selected poles -	____	____
6. Nailed blocks to exterior wall studs -	____	____
7. Nailed ledgers to poles -	____	____
8. Raised poles into position and toenailed ledgers onto tops of blocks -	____	____
9. Placed poles on blocks to prevent settling -	____	____
10. Measured and cut braces to required length -	____	____
11. Nailed braces across poles in " x " fashion -	____	____
12. Selected planks to span ledgers -	____	____
13. Lifted planks into place overlapping at support if necessary -	____	____
14. Nailed guardrail and toeboard across open side and ends -	____	____

Criteria: Competence in the task will be recognized when the scaffolds are made up to industrial standards.

Tools and Equipment:

Resources:

Duty: Framing the Structure	**Duty No.** A **Task No.** 86

Task: Construct double-pole scaffold using appropriate tools and equipment to provide a safe, efficient work space above ground level.

Achievement Indicators: The learner:	Yes	No
1. Determined height and width of working platform required -	____	____
2. Calculated length of and number of blocks and ledgers -	____	____
3. Measured and cut blocks -	____	____
4. Measured and cut ledgers -	____	____
5. Selected poles -	____	____
6. Nailed ledgers to poles -	____	____
7. Measured and cut horizontal bracing -	____	____
8. Nailed horizontal bracing to bottoms of two poles -	____	____
9. Nailed "x" bracing across this assembly -	____	____
10. Repeated steps 2 and 3 for remaining poles -	____	____
11. Raised both assemblies to vertical position -	____	____
12. Nailed assemblies together with horizontal bracing on top and bottom of both sides -	____	____
13. Nailed one diagonal brace on each side -	____	____
14. Selected planks to span upper ledgers -	____	____
15. Lifted planks into place, overlapping at supports if necessary -	____	____
16. Nailed guard rails and toeboards on at least two sides -	____	____

Criteria: Competence in the task will be recognized when the work is done to industrial standards.

Tools and Equipment:	**Resources:**

Duty: Trimming the Exteriors	**Duty No.** B **Task No.** 1

Task: Estimate siding using appropriate tools and equipment to establish materials required to complete project.

Achievement Indicators: The learner:	Yes	No
1. Measured length of wall -	____	____
2. Measured height of wall -	____	____
3. Multiplied length x height to determine square feet of wall surface -	____	____
4. Measured length of siding (panel or board) -	____	____
5. Measured width of siding (panel or board) -	____	____
6. Multiplied length x width to determine square feet per unit of material -	____	____
7. Divided square feet of wall surface by square feet of one material unit to determine quantity needed -	____	____
8. Recorded calculated estimates to be used in ordering -	____	____

Criteria: Competence in the task will be recognized when the siding covers wall areas with no full panels or boards in excess.

Tools and Equipment:	**Resources:**

Duty: Trimming the Exteriors

Duty No. B

Task No. 2

Task: Construct rake cornice using appropriate tools and equipment to complete job.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans for cornice detail -	___	___
2. Cut blocking as required on plans -	___	___
3. Nailed blocking along rake of gable end -	___	___
4. Measured along rake for fascia length -	___	___
5. Cut fascia -	___	___
6. Nailed fascia to blocking -	___	___
7. Measured along rake for soffit length -	___	___
8. Cut soffit -	___	___
9. Nailed soffit to underside of blocking -	___	___

Criteria: Competence in the task will be recognized when the rake cornice is straight and true following the rake of the roof, with tight joint between fascia and soffit.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 3

Task: Construct box cornice using appropriate tools and equipment to complete job.

Achievement Indicators: The learner:	Yes	No
1. Checked plans for corner detail -		
2. Placed level along bottom edge of rafters and marked point where top of level touches sheathing -		
3. Chalked line -		
4. Checked level -		
5. Cut vertical rafter ends -		
6. Tacked ledgers along length of cornice -		
7. Calculated placement and length of lookouts -		
8. Cut lookouts -		
9. Determined dimensions of corner lookouts -		
10. Cut corner lookouts -		
11. Removed ledger -		
12. Selected and added cleats -		
13. Cut ledger to length -		
14. Nailed lookouts -		
15. Raised assembled cornice -		
16. Nailed ledger to studs -		
17. Nailed corner lookouts -		

Criteria: Competence in the task will be recognized when the box cornice is level, and corner lookouts are nailed with 8 penny coated nails.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 4

Task: Install wood fascia using appropriate tools and equipment to complete job.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans for fascia detail -	____	____
2. Measured for length of fascia -	____	____
3. Checked rafter ends for alignment -	____	____
4. Cut rafter ends if necessary -	____	____
5. Cut fascia to length -	____	____
6. Cut groove for soffit material 3/4" from bottom edge -	____	____
7. Butted joints of fascia boards at 45' -	____	____
8. Fitted fascia in place overlapping last rafter -	____	____
9. Nailed fascia to rafter ends -	____	____
10. Checked for level and shim if necessary -	____	____
11. Countersunk nails -	____	____

Criteria: Competence in the task will be recognized when the fascia is straight, level, and securely fastened to framing.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 5

Task: Install wood soffit using appropriate tools and equipment to complete job.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans for soffit detail --	____	____
2. Measured for length and width of soffit -	____	____
3. Checked rafter ends for alignment -	____	____
4. Cut rafter ends if necessary -	____	____
5. Cut soffit piece to desired length and width -	____	____
6. Installed ventilators in soffit -	____	____
7. Butted joints of two soffit lengths at 45' -	____	____
8. Fitted soffit between fascia and wall in fascia groove -	____	____
9. Nailed soffit to framing -	____	____

Criteria: Competence in the task will be recognized when the soffit is straight, level, and securely fastened to framing.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 6

Task: Install aluminum fascia using appropriate tools and equipment to complete job.

Achievement Indicators:

The learner:	Yes	No
1. Measured for length of fascia -	____	____
2. Checked subfascia framing for alignment -	____	____
3. Cut fascia to desired length -	____	____
4. Nailed as per manufacturer's instructions -	____	____
5. Checked level and adjusted if necessary -	____	____

Criteria: Competence in the task will be recognized when the work is done to acceptable workmanship standards.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 7

Task: Install aluminum soffit using appropriate tools and equipment to complete job.

Achievement Indicators: The learner:

		Yes	No
1.	Checked subframing for alignment -	____	____
2.	Measured length of overhang -	____	____
3.	Cut J-channel to length -	____	____
4.	Nailed J-channel to overhang at wall -	____	____
5.	Measured width of overhang -	____	____
6.	Cut lengths of soffit equal to width of overhang -	____	____
7.	Placed first piece soffit in J-channel, groove side out at end of overhang -	____	____
8.	Nailed front cover of soffit section at tongue -	____	____
9.	Continued adding subsequent soffit sections pushing tongue edge into groove and repeating steps 6-8 -	____	____

Criteria: Competence in the task will be recognized when the aluminum soffit is straight, free of dents and crimps and is securely fastened to framing.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 8

Task: Case exterior opening using appropriate tools and equipment to complete job.

Achievement Indicators: The learner:	Yes	No
1. Measured horizontal and vertical opening dimensions -	____	____
2. Measured, marked and cut bottom casing member -	____	____
3. Nailed bottom casing framing -	____	____
4. Measured and marked side casing members -	____	____
5. Cut side casing members with heads exposed -	____	____
6. Nailed side casing -	____	____
7. Measured and marked top casing member -	____	____
8. Cut top casing member -	____	____
9. Aligned top casing with side casing -	____	____
10. Checked site casing for vertical plumb -	____	____
11. Checked top casing for level -	____	____
12. Nailed all casing members -	____	____
13. Set nail heads -	____	____

Criteria: Competence in the task will be recognized when the casing is plumb, level, and with joints tight.

Tools and Equipment:	**Resources:**

Duty: Trimming the Exteriors

Duty No. B

Task No. 9

Task: Install window using appropriate tools and equipment to complete job.

Achievement Indicators: The learner:

		Yes	No
1.	Checked plans for window detail -	____	____
2.	Checked window size -	____	____
3.	Placed a bead of caulk, sheathing contacts casing -	____	____
4.	Lifted window unit into opening -	____	____
5.	Leveled window unit -	____	____
6.	Nailed window molding or flange to framing at top to hold unit in place -	____	____
7.	Checked window unit for plumb and level -	____	____
8.	Nailed window unit to framing -	____	____
9.	Checked opening operation of window -	____	____
10.	Adjusted if necessary -	____	____

Criteria: Competence in the task will be recognized when the window unit is installed to acceptable workmanship standards.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors	**Duty No.** B **Task No.** 10

Task: Install drip cap using appropriate tools and equipment to flash window or door.

Achievement Indicators: The learner:

	Yes	No
1. Measured for length of drip cap required -	____	____
2. Marked and cut drip cap -	____	____
3. Snapped chalk line at horizontal alignment of drip cap -	____	____
4. Held drip cap piece in position -	____	____
5. Nailed to framing -	____	____

Criteria: Competence in the task will be recognized when the drip cap is level and securely fastened.

Tools and Equipment:

Resources:

Duty: Trimming the Exterior	**Duty No.** B **Task No.** 11

Task: Install prefabricated storm unit using appropriate tools and equipment to seal window.

Achievement Indicators: The learner:

	Yes	No
1. Measured opening size -	____	____
2. Measured and compared unit size -	____	____
3. Lifted unit into position -	____	____
4. Leveled unit -	____	____
5. Fastened unit -	____	____

Criteria: Competence in the task will be recognized when the door or window unit is installed to the acceptable construction standards.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 13

Task: Install exterior door jamb using appropriate tools and equipment to allow for door installation.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans for door jamb detail -	____	____
2. Checked rough opening dimensions -	____	____
3. Measured, marked and cut two side jambs to height -	____	____
4. Measured, marked and cut head jamb to width -	____	____
5. Nailed side jambs into head jamb -	____	____
6. Cut a temporary spacer piece width of inside opening as measured at head jamb -	____	____
7. Set jamb unit in position in rough opening with spacer at bottom -	____	____
8. Inserted shims on both sides at head and sill to hold jamb in place -	____	____
9. Checked head for level and adjusted if necessary -	____	____
10. Set jamb specified distance from face of framing -	____	____
11. Plumb edge and face -	____	____
12. Nailed jambs at head and sill -	____	____
13. Inserted shims near hinge and knob locations -	____	____
14. Maintained plumb and nailed jamb to frame -	____	____
15. Checked for square -	____	____

Criteria: Competence in the task will be recognized when the door jambs are installed according to acceptable construction standards

Tools and Equipment:	**Resources:**

Duty: Trimming the Exteriors	**Duty No.** B
	Task No. 14

Task: Hang exterior door using appropriate tools and equipment to complete job.

Achievement Indicators: The learner:

		Yes	No
1:	Checked plans for door detail -	____	____
2.	Removed threshold -	____	____
3.	Placed wedge in threshold position -	____	____
4.	Set door in jamb opening -	____	____
5.	Wedged door in place from latch side -	____	____
6.	Shimed door bottom to establish head clearance -	____	____
7.	Checked for fit -	____	____
8.	Marked approximate hinge locations on door and jamb -	____	____
9.	Checked for clearances -	____	____
10.	Removed door -	____	____
11.	Measured and marked exact hinge locations on door and jamb -	____	____
12.	Chiseled gains -	____	____
13.	Set hinges in place -	____	____
14.	Screwed hinges using only three screws -	____	____
15.	Removed pins and screwed remaining leaves -	____	____
16.	Replaced threshold -	____	____
17.	Test-hung door partially inserting pins -	____	____
18.	Adjusted for clearance and operation -	____	____
19.	Drove pins -	____	____
20.	Checked for operations -	____	____

Criteria: Competence in the task will be recognized when the work is done to acceptable construction standards.

Tools and Equipment:	**Resources:**

Duty: Trimming the Exteriors

Duty No. B

Task No. 15

Task: Caulk doors and windows using appropriate tools and equipment to seal the unit.

Achievement Indicators:

The learner:	Yes	No
1. Cleaned joint to be caulked -	____	____
2. Filled large cavities with oakum or cotton rope -	____	____
3. Placed caulking cartridge in caulking gun -	____	____
4. Cut off tip of desired width and angle -	____	____
5. Punctured cartridge seal -	____	____
6. Started at one corner and gently squeezed gun trigger while slowly moving gun in one direction -	____	____
7. Repeated step 6 on all joints -	____	____

Criteria: Competence in the task will be recognized when the work is done to specifications and acceptable constructions standards.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 16

Task: Install garage door using appropriate tools and equipment to complete job.

Achievement Indicators: The learner:	Yes	No
1. Read manufacturer's instructions -		
2. Selected and cut stock for track bracket supports -		
3. Nailed supports to sides of door opening -		
4. Cut stop molding -		
5. Fitted and tacked molding to frame -		
6. Set bottom door panel in opening -		
7. Checked fit -		
8. Marked floor contours on bottom panel -		
9. Removed panel and cut to fit contours -		
10. Installed bottom fixture to bottom panel as per manufacturer's instructions -		
11. Installed lift handle as per manufacturer's instuctions -		
12. Set bottom panel in place -		
13. Nailed in position temporarily -		
14. Tacked second panel in place -		
15. Connected panels with hinges -		
16. Repeated steps 14 -15 for remaining panels -		
17. Installed lock as per manufacturer's instructions -		
18. Fitted rollers into edge hinges -		
19. Attached brackets to straight track if necessary -		
20. Fitted vertical track over rollers -		
21. Screwed brackets in place -		

		Yes	No
22.	Bolted curved track to lower track at hanger -		
23.	Installed permanent supports for horizontal track as per manufacturer's instructions -		
24.	Added tension braces and door stiffeners as per manufacturer's instructions -		
25.	Installed counterbalancing unit -		
26.	Removed nails positioned in step 13 -		
27.	Tested door and adjusted if necessary -		
28.	Weatherstriped bottom edge if required -		

Criteria: Competence in the task will be recognized when the garage door is installed according to acceptable construction standards.

Tools and Equipment:	**Resources:**

Duty: Trimming the Exteriors	**Duty No.** B
	Task No. 17

Task: Install corner board for wood siding using appropriate tools and equipment to seal corners.

Achievement Indicators: The learner:	Yes	No
1. Measured for length of corner board material -	____	____
2. Applied corner boards in one of following methods -	____	____
One-piece molding:		
a. Cut prefab board if necessary -	____	____
b. Set board in position -	____	____
c. Nailed top -	____	____
d. Checked for plumb and adjusted -	____	____
e. Nailed board to frame -	____	____
Two-piece molding:		
a. Cut two boards, one 1" wider than other -	____	____
b. Butted boards in corner position with wider board overlapping -	____	____
c. Nailed board tops -	____	____
d. Checked for plumb and adjusted -	____	____
e. Nailed boards to framing -	____	____
Two-piece molding with cove:		
a. Cut two boards of equal width -	____	____
b. Set boards in position, one on each wall edge -	____	____
c. Nailed tops -	____	____
d. Checked for plumb and adjusted -	____	____
e. Nailed boards to framing -	____	____
f. Cut cove molding to length -	____	____
g. Fitted in gap between corner boards -	____	____
h. Nailed in place -	____	____

Criteria: Competence in the task will be recognized when the corner board is plumb, straight, and securely fastened to frame.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 18

Task: Install bevel or lap siding using appropriate tools and equipment to seal exterior.

Achievement Indicators: The learner:	Yes	No
1. Read manufacturer's installation instructions -	_____	_____
2. Fasten primed wood starter strip to sill plate -	_____	_____
3. Cut corner boards -	_____	_____
4. Cut 2" wedges -	_____	_____
5. Primed wedges -	_____	_____
6. Installed cornerboards -	_____	_____
7. Installed wedges at corner boards and over studs at ends of siding lengths -	_____	_____
8. Primed all unprimed edges of siding -	_____	_____
9. Nailed first course of siding with bottom edge ¼" below starter strip -	_____	_____
10. Used spacer block to locate second course -	_____	_____
11. Overlapped second and all succeeding courses -	_____	_____
12. Nailed second and succeeding courses through siding and sheathing into framing member until wall was complete -	_____	_____

Criteria: Competence in the task will be recognized when the work is done according to acceptable construction standards.

Tools and Equipment:	**Resources:**

Duty: Trimming the Exteriors

Duty No. B

Task No. 19

Task: Install metal corner for siding using appropriate tools and equipment to seal corners.

Achievement Indicators:

The learner:	Yes	No
1. Read manufacturer's instructions -	____	____
2. Installed starter strip -	____	____
3. Measured for length of corner piece -	____	____
4. Cut corner piece -	____	____
5. Set into position at corner -	____	____
6. Nailed top -	____	____
7. Checked for plumb, adjusted as necessary -	____	____
8. Nailed corner in position as per manufacturer's specifications -	____	____

Criteria: Competence in the task will be recognized when the corner is plumb, straight, and securely fastened to framing.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 20

Task: Install metal or vinyl siding using appropriate tools and equipment to seal exterior walls.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans for siding location and treatment -	____	____
2. Read manufacturer's instructions -	____	____
3. Marked location of bottom edge of starter strip at sill -	____	____
4. Fasten starter strip -	____	____
5. Installed corner posts plumb -	____	____
6. Installed J channel around openings -	____	____
7. Installed siding around openings -	____	____
8. Slipped bottom edge of first course into starter strip slot -	____	____
9. Pushed until joint was tight -	____	____
10. Nailed through slots -	____	____
11. Repeated steps 7-9 until siding was complete -	____	____

Criteria: Competence in the task will be recognized when the work is done to workmanship standards.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 21

Task: Install outside corner of wood shingle siding using appropriate tools and equipment to seal exterior corners.

Achievement Indicators:

The learner:	Yes	No
1. Installed each shingle course to corner -	____	____
2. Measured and cut corner shingle -	____	____
3. Nailed first corner shingle in place -	____	____
4. Held second corner shingle in place -	____	____
5. Scribed line on back of shingle marking edge of first shingle -	____	____
6. Cut second shingle along line -	____	____
7. Nailed second shingle in place, lapping edge neatly over first shingle -	____	____
8. Alternated lap on each succeeding course, repeating steps 1-6 -	____	____

Criteria: Competence in the task will be recognized when the corners are tight and laps are even.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors	**Duty No.** B
	Task No. 22

Task: Install wood shingle siding using appropriate tools and equipment to seal exterior walls.

Achievement Indicators: The learner:	Yes	No
1. Checked plans for coursing and details -	____	____
2. Read manufacturer's installation directions -	____	____
3. Snapped chalk line on foundation wall for bottom course -	____	____
4. Installed corner boards if necessary -	____	____
5. Nailed first course with butts level -	____	____
6. Marked location of gutt line for second course -	____	____
7. Nailed second course directly over first course covering joints -	____	____
8. Measured up to butt line of next course -	____	____
9. Struck chalk line for next course -	____	____
10. Nailed next course, covering joints of previous course -	____	____
11. Repeated steps 6-8, for succeeding courses -	____	____

Criteria: Competence in the task will be recognized when the work is done to acceptable workmanship standards.

Tools and Equipment:	**Resources:**

Duty: Trimming the Exteriors	**Duty No.** B **Task No.** 23

Task: Install panel siding using appropriate tools and equipment to seal exterior walls.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans for siding specifications -		
2. Read manufacturer's installation directions -		
3. Set first panel into position with edges located over center of framing members -		
4. Tacked into place; bottom should be at least ¼" below wood sill -		
5. Checked for plumb -		
6. Leveled first panel -		
7. Nailed panel in place -		
8. Continued installing panels around building perimeter -		
9. Measured and cut for openings as required -		
10. Checked each panel for level and plumb -		
11. Caulked horizontal joints -		

Criteria: Competence in the task will be recognized when the work has been done to workmanship standards.

Tools and Equipment:	**Resources:**

Duty: Trimming the Exteriors

Duty No. 8

Task No. 24

Task: Construct and install wood louvers using appropriate tools and equipment to allow for proper venting.

Achievement Indicators: The learner:	Yes	No
1. Checked plans for location and dimensions of louvers -	____	____
2. Measured rough opening -	____	____
3. Cut louver members -	____	____
4. Nailed together -	____	____
5. Measured inside frame for length of louvers -	____	____
6. Laid out louver locations on frame sides -	____	____
7. Set louvers at 45°, with top of each louver about ½" above bottom of next louver -	____	____
8. Cut louvers -	____	____
9. Set louvers in place -	____	____
10. Nailed louver end to frame -	____	____
11. Cut screen to outside dimension of frame -	____	____
12. Stapled screen to back side of louver -	____	____
13. Nailed louver unit in place -	____	____

Criteria: Competence in the task will be recognized when the louver has squared corners, and louvers are fitted, and are securely fastened in wall opening.

Tools and Equipment:

Resources:

Duty: Trimming the Exterior

Duty No. B

Task No. 25

Task: Install exterior shutters using appropriate tools and equipment to complete exterior trim.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans for window treatment -	____	____
2. Checked window height -	____	____
3. Checked shutter height -	____	____
4. Predrilled holes at four corners of shutters -	____	____
5. Set shutter in place against window frame -	____	____
6. Checked top and bottom alignment -	____	____
7. Screwed shutter securely in place -	____	____

Criteria: Competence in the task will be recognized when the work is done according to acceptable workmanship standards.

Tools and Equipment:	**Resources:**

Duty: Trimming the Exterior

Duty No. B

Task No. 26

Task: Install gutter(s) using appropriate tools and equipment to control rain water.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans and specifications for gutter placement -	____	____
2. Nailed gutter apron along roof -	____	____
3. Measured required length of gutter -	____	____
4. Cut gutter to length with tin snips -	____	____
5. Positioned corners or end caps on gutter -	____	____
6. Drilled 1/8" holes through gutter and corner or end cap -	____	____
7. Fastened end caps or corners with pop rivets through holes -	____	____
8. Sealed pop rivets and joints with liquid solder -	____	____
9, Hooked gutter into gutter apron -	____	____
10. Attached gutter hangers every 2" along gutter -	____	____

Criteria: Competence in the task will be recognized when the work is done to workmanship standards.

Tools and Equipment:

Resources:

Duty: Trimming the Exteriors

Duty No. B

Task No. 27

Task: Install downspout(s) using appropriate tools and equipment to control rain water.

Achievement Indicators: The learner:	Yes	No
1. Located position of nosing on gutter -	____	____
2. Drilled 1/8" holes through edges of nosing and gutter -	____	____
3. Cut hole in bottom of gutter with snips to inside perimeter of nosing -	____	____
4. Beaded liquid solder around top of nosing -	____	____
5. Attached nosing to bottom of gutter with pop rivets through holes -	____	____
6. Measured length of downspout with snips -	____	____
7. Cut length of downspout with snips -	____	____
8. Positioned downspout over nosing -	____	____
9. Secured downspout to wall with straps -	____	____

Criteria: Competence in the task will be recognized when the work is done to workmanship standards.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 1

Task: Use personal protective equipment using appropriate tools and equipment to provide safety for personnel.

Achievement Indicators: The learner:

	Yes	No
1. Wore approved hard hats at all times on the job -	____	____
2. Wore approved work gloves when needed. Gloves were not worn while operating rotary type	____	____
3. Wore approved safety shoes when recommended -	____	____
4. Wore approved eye and face protection when warranted -	____	____
5. Wore special equipment such as safety belts, dust respirators, metal shin guards, and neoprene weather clothing when required -	____	____

Criteria: Competence in the task will be recognized when the hard hats required on worn, gloves are worn as required, safety shoes are worn as required, and special equipment is used as required.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills	**Duty No.** C **Task No.** 2

Task: Identify job safety requirements using appropriate aids to provide a safe working environment.

Achievement Indicators: The learner:	Yes	No
1. Obtained the descriptions of two jobs -	___	___
2. Secured pertinent OSHA documents -	___	___
3. Located sections of OSHA information which relates to the specific job descriptions -	___	___
4. Recorded this information -	___	___

Criteria: Competence in the task will be recognized when the written information is consistent with OSHA standards for the specific job.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 4

Task: Service and maintain portable woodworking power tools using appropriate tools and equipment to provide workable tools.

Achievement Indicators:

The learner:	Yes	No
1. Cleaned and oiled power tools -	____	____
2. Submitted power tools to authorized service person for repairs -	____	____

Criteria: Competence in the task will be recognized when the woodworking power tools are serviced and maintained properly.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills	**Duty No.** C **Task No.** 5

Task: Sharpen circular saw blades using appropriate tools and equipment to provide a means of cutting.

Achievement Indicators:

The learner:	Yes	No
1. Disconnected electrical power to table saw -	____	____
2. Removed blade from machine -	____	____
3. Removed gum from blade with soap and hot water -	____	____
4. Reversed saw blade and placed on arbor -	____	____
5. Lowered blade below surface of table -	____	____
6. Placed oilstone over blade and joint blade by moving blade up very slowly -	____	____
7. Gummed saw as needed -	____	____
8. Set teeth with setting device -	____	____
9. Placed blade in saw clamp and filed teeth with mill file (checked blade specifications before filing) -	____	____
10. Smoothed gullets with rat-tail file -	____	____

Criteria: Competence in the task will be recognized when the height of each saw tooth will be the same, bottom of each gullet will be the same depth, each tooth has equal set, each tooth is filed according to manufacturer's specifications and each tooth is sharp.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors - Basic Skills	**Duty No.** C **Task No.** 6

Task: Sharpen and care for handsaws using appropriate tools and equipment to provide a means of cutting.

Achievement Indicators: The learner:	Yes	No
1. Secured saw in clamping device -	____	____
2. Jointed teeth by laying an 8 inch mill file flat on teeth and filing jig -	____	____
3. Removed saw from claps and teeth -	____	____
4. Replaced saw in clamping device -	____	____
5. Filed teeth with triangular file -	____	____
6 Checked teeth for accuracy -	____	____

Criteria: Competence in the task will be recognized when the teeth are uniform height, teeth are set in the proper direction, and amount of set is uniform.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 7

Task: Sharpen plane irons and care for hand planes using appropriate tools and equipment to provide safe and efficient planes.

Achievement Indicators: The learner:

	Yes	No
1. Dressed grinding wheel -	____	____
2. Adjusted tool rest parallel with floor and centered it on grinding wheel -	____	____
3. Laid tool on rest and ground off any nicks or chips on cutting edge -	____	____
4. Adjusted tool rest to bevel angle -	____	____
5. Ground plane iron to desired angle -	____	____
6. Ground plane iron until it was hollow around to the cutting edge -	____	____
7. Checked bevel angle to be sure it was correct angle. If the angle was correct, went to step 8, if not, repeated steps 4-7 -	____	____
8. Held the plane iron on an oilstone until a wire edge had formed on the back side of the tool -	____	____
9. Laid plane iron flat on back side and removed wire edge -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to supervisor's standards.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills	**Duty No.** C	
	Task No. 8	

Task: Shape edges on wood shaper using appropriate tools and equipment to comply with contour required.

Achievement Indicators:

The learner:	Yes	No
1. Selected cutterhead or knives and locked in place -	____	____
2. Adjusted cutterhead to desired height -	____	____
3. Adjusted fence to desired depth -	____	____
4. Checked rotation of cutterhead -	____	____
5. Made trial run on scrap stock -	____	____
6. Shaped stock -	____	____

Criteria: Competence in the task will be recognized when the cuts are free from chips, finished shape agrees with drawings and specifications, and cuts are uniform.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 9

Task: Sharpen twist drills and augers using appropriate tools and equipment to provide a means of drilling.

Achievement Indicators: The learner:	Yes	No
1. Squared surface of grinding wheel -	____	____
2. Checked angle of drill bit -	____	____
3. Firmly grasped the end of the twist drill near the point with the tips of the fingers of right hand. Laid middle finger on the tool rest to act as a fulcrum -	____	____
4. Held the shank of the drill with left hand -	____	____
5. Moved the drill shank until the cutting lip was horizontal with the tool rest and parallel with the face of the grinding wheel -	____	____
6. Moved the drill slowly toward the wheel until it touched -	____	____
7. Used the middle finger of right had as a pivot. Pushed the shank of the drill slightly downward with left hand -	____	____
8. Continued grinding each cutting lip and clearance surface until the properly ground point was formed -	____	____
9. Checked the point for accuracy with a drill grinding gauge -	____	____

Criteria: Competence in the task will be recognized when the cutting lips form an angle of 118°, clearance angle is 12°, and drill bit does not show results of overheating.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 10

Task: Sharpen and care for wood chisels using appropriate tools and equipment to provide a means of cutting.

Achievement Indicators: The learner:	Yes	No
1. Dressed grinding wheel -	____	____
2. Adjusted tool rest parallel with floor and centered it on grinding wheel -	____	____
3. Laid tool on rest and ground off any nicks or chips on cutting edge -	____	____
4. Adjusted tool rest to bevel angle -	____	____
5. Ground chisel to desired angle -	____	____
6. Ground chisel until it was hollow around to the cutting edge -	____	____
7. Checked bevel angle to be sure it was correct angle -	____	____
8. Held the chisel on an oilstone until a wire edge formed on the back side of the tool -	____	____

Criteria: Competence in the task will be recognized when the chisels are ground, the ground cutting edge is 90° to side of chisel, tool will not show evidence of overheating and the tool is sharp.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 11

Task: Check and align installations for level and plumb using appropriate tools and equipment to provide a level and plumb finished product.

Achievement Indicators: The learner:

	Yes	No
1. Placed the level on the horizontal surface to be tested -	____	____
2. Referred to the bottom tube located in the center of the level and observed the position of the bubble -	____	____
3. Raised or lowered one end of the surface until the bubble was centered between the lines -	____	____
4. Used always a straightedge with the spirit level to level or plumb a long surface -	____	____

Criteria: Competence in the task will be recognized when the units are level, plumb and the units are positioned according to specifications.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 12

Task: Copy and transfer angles using sliding T-bevel, framing combination squares as layout tools to provide a means of cutting matching components.

Achievement Indicators: The learner:	Yes	No
Framing Square		
1. Placed body of square against one edge of the board and marked along the outside edge of the tongue -	____	____
Sliding T-Bevel		
1. Set T-bevel to required angle -	____	____
2. Transferred angle to material -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to supervisor's directions.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 13

Task: Select proper hammer and drive various types and sizes of nails using appropriate tools and equipment to allow fusing components together.

Achievement Indicators:

The learner:	Yes	No
1. Selected correct type and size of nail -	____	____
2. Started nail at desired angle with light taps of hammer -	____	____
3. Used maximum leverage of hammer to drive nail into wood -	____	____
4. Drove head of nail flush with surface of wood -	____	____

Criteria: Competence in the task will be recognized when the nails are located away from edge of stock to prevent stock from splintering, nails are staggered so that nails are not in line with each other in the same grain, nails are not protruding above the surface of the wood.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 14

Task: Read and measure using rules and squares to fit components together.

Achievement Indicators: The learner: Yes No

1. Measured each piece of stock and recorded the dimensions - ____ ____
2. Drew four lines to predetermined lengths - ____ ____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to supervisor's specifications.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 15

Task: Glue wood stock using hand and bar clamps to fasten components together.

Achievement Indicators:

The learner:	Yes	No
1. Secured pieces of scrap wooden blocks to place between stock and clamps -	____	____
2. Obtained the required number of clamps -	____	____
3. Clamped work together without glue -	____	____
4. Checked surfaces and angles -	____	____
5. Made corrections on stock if required -	____	____
6. Removed clamps -	____	____
7. Applied glue -	____	____
8. Replaced clamps -	____	____
9. Checked surfaces and angles -	____	____
10. Wiped off excessive glue -	____	____
11. Sat work aside in such a position that there is no wind or twist -	____	____

Criteria: Competence in the task will be recognized when the parts are properly aligned, glue is evenly applied to all bonding surfaces with no visual openings, surplus glue is removed before hardening, and wooden blocks are used to protect edges of wood from clamp marks.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills	**Duty No.** C **Task No.** 16

Task: Bore holes with hand brace using augers and expansion bits to provide a means of drilling holes.

Achievement Indicators: The learner:

	Yes	No
1. Selected proper size auger bit or expansion bit -	____	____
2. Secured bit in jaws of brace -	____	____
3. Secured stock in a horizontal position -	____	____
4. Positioned brace so that it was squared to the surface of the work -	____	____
5. Bored to correct depth -	____	____

Criteria: Competence in the task will be recognized when the holes are of the specified size, holes are drilled as specified locations, holes are square to the surface of the stock, and each hole is free of splinters on the back of the stock.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 17

Task: Drill bore holes using the portable hand drill to drill holes.

Achievement Indicators: The learner:

	Yes	No
1. Determined location of holes from job sheet -	____	____
2. Marked location of each hole on stock -	____	____
3. Clamped stock to horizontal surface -	____	____
4. Selected correct size drill bit -	____	____
5. Installed drill bit on chuck -	____	____
6. Drilled holes to correct angle and depth -	____	____
7. Placed a waste piece of stock beneath the piece that was to be bored to avoid splintering -	____	____

Criteria: Competence in the task will be recognized when the hole size matches the layout, locations are accurate, holes are square to the surface, and back of stock is free of splinters.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 18

Task: Plane stock to specified sizes using hand planes to comply with size needed.

Achievement Indicators: The learner:

	Yes	No
1. Determined amount to be removed with plane -	____	____
2. Checked stock for direction of grain -	____	____
3. Secured stock in proper position for planing -	____	____
4. Set the plane to cut a fine shaving -	____	____
5. Planed surface of stock -	____	____
6. Tested surface frequently with try square -	____	____

Criteria: Competence in the task will be recognized when the planed edge is square with face of the board, each planed surface is flat and smooth, and there is no chipped edge, gouges or cuts in the stock.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 19

Task: Plane stock using the power hand plane to provide flat, smooth stock.

Achievement Indicators: The learner:

	Yes	No
1. Secured stock -	____	____
2. Adjusted plane -	____	____
3. Planed stock to specifications -	____	____

Criteria: Competence in the task will be recognized when the stock is planed with the grain, planed edge is straight and true, and cut is at the prescribed angle.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 20

Task: Plane stock to thickness using a single surface planer (surfacer) to provide thickness required.

Achievement Indicators: The learner:

	Yes	No
1. Determined the finished thickness and the rough thickness of stock to be surface planed -	____	____
2. Checked stock for foreign material such as grit, paint, nails, etc. -	____	____
3. Checked grain of stock after all foreign material has been removed -	____	____
4. Set bed of surface planer for desired cut -	____	____
5. Fed stock in at right angle to cutterhead -	____	____
6. Checked thickness of stock -	____	____
7. Reset bed of surface planer for desired cut -	____	____
8. Continued making cuts until specified thickness was reached -	____	____

Criteria: Competence in the task will be recognized when the stock is planed to specified thickness, stock is planed with the grain to the extent possible, and the stock is free of chip impressions.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 21

Task: Sand surfaces and edges using belt sander to provide smooth surfaces.

Achievement Indicators: The learner:

	Yes	No
1. Secured work in horizontal position -	____	____
2. Selected appropriate size belt sander for specific job -	____	____
3. Selected appropriate abrasive belt for sanding job -	____	____
4. Sanded work to requirements -	____	____

Criteria: Competence in the task will be recognized when the surfaces are sanded smooth, finished stock is to the predetermined size and shape, burn marks do not exist, and surface is free of cross grain scratches.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 22

Task: Sand finish materials by hand using appropriate tools and equipment to provide a smooth surface.

Achievement Indicators:

The learner:	Yes	No
1. Checked surface for defects -	____	____
2. Repaired defects if required -	____	____
3. Tore 9" x 11" sheets of sandpaper into 4 equal parts -	____	____
4. Folded sandpaper around sanding block -	____	____
5. Sanded surface with the grain -	____	____
6. Checked surface to insure proper sanding -	____	____

Criteria: Competence in the task will be recognized when the sanding is with the grain, pencils and small scratches are removed and the correct grades of sandpaper are used in order to get smooth surface.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 23

Task: Set nails using a nail set and apply wood filler to provide a smooth finished surface.

Achievement Indicators: The learner:	Yes	No
1. Selected appropriate type and size of finishing or casing nail -	___	___
2. Drove and set nails to required depth -	___	___
3. Filled recess with required filler material -	___	___
4. Wiped off excess filler, if material was pre-finished -	___	___
5. Removed excess filler by sanding lightly if the surface was to be finished -	___	___

Criteria: Competence in the task will be recognized when the nails are set in properly and the filler correspondes with the wood texture.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 24

Task: Joint stock using the jointer to provide a smooth edge or surface.

Achievement Indicators:

The learner:	Yes	No
1. Adjusted fence to proper position and angle -	____	____
2. Adjusted depth of cut by moving infeed table to required position -	____	____
3. Made cut by feeding stock into the cutterhead with the grain, holding stock down on outfeed table to insure a straight cut -	____	____

Criteria: Competence in the task will be recognized when the surface is planed according to specifications, and the cuts are made with the grain.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. C

Task No. 25

Task: Shape stock using outline pattern to provide the contour wanted.

Achievement Indicators: The learner:

	Yes	No
1. Selected cutterhead or knives and locked -	____	____
2. Adjusted cutter to desired height -	____	____
3. Checked rotation of cutterhead -	____	____
4. Secured stock to jig -	____	____
5. Made trial run -	____	____
6. Shaped stock -	____	____

Criteria: Competence in the task will be recognized when the cuts are uniform, cuts are free of chips, and finished shape is in agreement with the drawings and specifications.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 26

Task: Install dowels in common wood joints using appropriate tools and equipment to provide a solid joint.

Achievement Indicators:

The learner:	Yes	No
1. Finished to proper dimensions the two parts that are to be doweled together -		
2. Set marking gauge to center of each piece of stock -		
3. Measured and marked location of dowel -		
4. Placed the two pieces together -		
5. Selected size of drill to correspond with size of dowel -		
6. Drilled holes -		
7. Cut dowels 1/8" shorter than length of holes -		
8. Inserted dowel for trial assembly -		
9. Made corrections if needed -		
10. Applied glue to surface of joint and dowel -		
11. Fitted joint together and clamped -		
12. Wiped off all excess glue with damp cloth -		

Criteria: Competence in the task will be recognized when the dowels are located in the center of the stock in terms of its thickness, edges of joints are properly aligned, and joints fit snug with no visual openings.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. 8

Task No. 27

Task: Install splines in common wood joints using appropriate tools and equipment to provide a solid joint.

Achievement Indicators:

The learner:	Yes	No
1. Checked specification for errors -	___	___
2. Checked wood for correct dimensions -	___	___
3. Tilted blade to correct angle -	___	___
4. Adjusted height of blade -	___	___
5. Adjusted miter gauge -	___	___
6. Cut recess for spline in the miter joint -	___	___
7. Cut the spline from correct thickness of material -	___	___
8. Installed spline in groove -	___	___
9. Made corrections if required -	___	___
10. Glued joints -	___	___
11. Clamped joint using recommended procedures -	___	___

Criteria: Competence in the task will be recognized when the work is done according to industrial standards.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 28

Task: Make butt joints using appropriate tools and equipment to make a joint.

Achievement Indicators:

The learner:	Yes	No
1. Obtained stock -	____	____
2. Laid out stock -	____	____
3. Cut stock to dimensions -	____	____
4. Checked assembled joint -	____	____
5. Fastened joint with required material -	____	____

Criteria: Competence in the task will be recognized when the joints have openings, and resulting end butt joint will be 90'.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 29

Task: Make lap joints using appropriate tools and equipment to make a joint.

Achievement Indicators:

The learner:	Yes	No
1. Squared ends of stock to be joined -	____	____
2. Reduced both pieces of stock to the same thickness -	____	____
3. Laid out and marked the face of stock -	____	____
4. Set marking gauges to one-half the thickness of stock -	____	____
5. Cut stock on waste side of the line and to the correct depth -	____	____
6. Made trial assembly of joint -	____	____
7. Made corrections if required -	____	____

Criteria: Competence in the task will be recognized when the work is done according to industrial standards.

Tools and Equipment:

Resources:

Duty:	Trimming the Interiors - Basic Skills	**Duty No.**	C
		Task No.	30

Task: Make mortise and tenon joint using appropriate tools and equipment to make appropriate joints.

Achievement Indicators:	The learner:	Yes	No
	Laying Out the Tenon		
1.	Selected face stock of both pieces, mortise and tenon -		
2.	Determined length of tenon -		
3.	Squared a line around tenon indicating length of tenon -		
4.	Determined thickness and shoulder dimension of tenon -		
5.	Marked the thickness of the tenon with marking gauge -		
6.	Marked the shoulder of the tenon with marking gauge -		
	Laying Out the Mortise		
1.	Determined and marked the length of the mortise from width of tenon -		
2.	Determined and marked the shoulder of mortise from shoulder of tenon -		
3.	Determined and marked the width of mortise from thickness of tenon -		
	Cutting the Mortise		
1.	Used mortiser of drill with mortiser attachment and waste within designated area to the correct depth -		
2.	Pared sides of mortise with chisel -		
	Cutting the Tenon		
1.	Cut checks of tenon with saw -		
2.	Cut width of tenon with saw -		
3.	Cut shoulders of tenon with saw -		

Criteria: Competence in the task will be recognized when the joint is tight and at the specified angle, opposite shoulders are parallel, and frictions of the joint holds the two pieces together.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 31

Task: Make rabbet joints using appropriate tools and equipment to provide an adequate joint.

Achievement Indicators:

The learner:	Yes	No
1. Squared the two pieces to be joined to exact length -	____	____
2. Laid out and marked rabbet joint -	____	____
3. Adjusted saw blade to correct height -	____	____
4. Adjusted miter gauge -	____	____
5. Cut rabbet to specifications -	____	____

Criteria: Competence in the task will be recognized when the rabbet joints are formed correctly.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 32

Task: Make dado joints using appropriate tools and equipment to provide an adequate joint.

Achievement Indicators:

The learner:	Yes	No
1. Located position of joint on stock -	____	____
2. Laid out and marked dado 90^{0} to edge of stock -	____	____
3. Measured thickness of board that was to fit into the dado -	____	____
4. Assembled dado head to the thickness determined in step 3 -	____	____
5. Adjusted dado head to correct position -	____	____
6. Adjusted fences and gauges as joint required -	____	____
7. Cut dado in scrap material -	____	____
8. Checked resulting dimensions of cut -	____	____
9. Made corrections, if required -	____	____
10. Cut dado joints as required -	____	____

Criteria: Competence in the task will be recognized when the joints are done with the following standards applying, the position of dado is located according to specifications, dado cut is to the correct depth, dado cut is to correct width, and the dado cut is as specified angle.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills	**Duty No.** C
	Task No. 33

Task: Make miter joints using appropriate tools and equipment to provide an adequate joint.

Achievement Indicators: The learner:

	Yes	No
1. Determined miter joint dimensions -	____	____
2. Laid out and marked stock -	____	____
3. Adjusted saw to 45° -	____	____
4. Cut miters to line -	____	____
5. Checked joints for accuracy -	____	____
6. Assembled joints as required by instructions -	____	____

Criteria: Competence in the task will be recognized when the work is done according to industrial standards.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 34

Task: Cut compound miters using table saw to provide adequate joints.

Achievement Indicators: The learner:

	Yes	No
1. Set miter gauge to specified angle -	____	____
2. Adjusted blade to specified angle -	____	____
3. Adjusted blade to proper height -	____	____
4. Made a trial cut to check angles -	____	____
5. Held stock securely against miter gauge while making finished compound miter cut -	____	____

Criteria: Competence in the task will be recognized when the finish cut is to specified angle, correct length, and excessive splintering does not exist.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 35

Task: Rip plywood using portable power saw to provide size of sheet required.

Achievement Indicators: The learner: Yes No

1. Checked dimensions on specifications - ____ ____
2. Placed plywood in horizontal position with saw horses at appropriate locations - ____ ____
3. Marked line according to specifications - ____ ____
4. Cut plywood on the waste side of the line - ____ ____

Criteria: Competence in the task will be recognized when the plywood is cut according to specifications.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 36

Task: Cut small trim stock using coping saw to provide length or contour required.

Achievement Indicators: The learner:

	Yes	No
1. Squared end of one piece of molding and fastened in place -	____	____
2. Cut a 45^0 back miter angle cut on second piece so that the contour of the molding would show a profile on the cut face -	____	____
3. Cut out face profile with the coping saw -	____	____
4. Placed the coped piece at right angle and snug against first piece -	____	____
5. Fastened coped member in place -	____	____

Criteria: Competence in the task will be recognized when the work is done according to industrial standards.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 37

Task: Cut irregular shapes using portable router to obtain shapes required.

Achievement Indicators: The learner:

	Yes	No
1. Selected desired cutterhead -	____	____
2. Locked cutterhead into the router -	____	____
3. Adjusted depth of cut to specifications -	____	____
4. Practiced on scrap stock -	____	____

5. Cut irregular shape with portable router along drawn

Criteria: Competence in the task will be recognized when the cuts are done correctly.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 38

Task: Cut chamfers using a table saw to provide angle wanted.

Achievement Indicators:

The learner:	Yes	No
1. Tilted arbor to required angle -	____	____
2. Adjusted saw blade to proper height -	____	____
3. Secured fence in correct position -	____	____
4. Made a trial cut to check for the desired angle -	____	____
5. Made a chamfer cut -	____	____

Criteria: Competence in the task will be recognized when measurements are correct and angles done according to specifications.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 39

Task: Cut dado using portable router to obtain size of dado wanted.

Achievement Indicators: The learner:

The learner:	Yes	No
1. Selected straight router bit of specified size -	____	____
2. Secured bit in the check of router -	____	____
3. Adjusted base of router to obtain the correct depth of cut -	____	____
4. Adjusted straightedge guide to specified position -	____	____
5. Secured stock in a horizontal position on bench -	____	____
6. Checked all adjustments -	____	____
7. Cut dado -	____	____
8. Accomplished, by changing the guide and making a series of cuts, cuts wider than diameter of cutter head -	____	____

Criteria: Competence in the task will be recognized when the dado is straight and parallel, cuts do not vary in depth and width, and cuts are of a 90° angle.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills	**Duty No.** C
	Task No. 40

Task: Cut holes using keyhole saw to provide hole sizes required.

Achievement Indicators:

The learner:	Yes	No
1. Bored hole in stock within designated cutting area -	_____	_____
2. Inserted keyhole saw in hole and cut on the waste side of the line -	_____	_____
3. Checked cut periodically to insure that cut was square to surface of stock -	_____	_____

Criteria: Competence in the task will be recognized when the cut is square with face of the board on the waste side of the line.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 41

Task: Cut large sheets of plywood and wallboard using table saw to provide size sheets required.

Achievement Indicators:

The learner:	Yes	No
1. Selected proper blade -	____	____
2. Set blade 1/4" above the thickness of the stock -	____	____
3. Adjusted fence to proper position -	____	____
4. Fed sheet of plywood through saw with edge against fence -	____	____
5. Had helper support stock on the outfeed side of saw -	____	____
6. Made sure splinter guard was working -	____	____

Criteria: Competence in the task will be recognized when it conforms to specifications sawblade is the correct height, kerf is on waste line, cuts are 90° to surface, and final cut is according to specifications.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors - Basic Skills

Duty No. C

Task No. 42

Task: Cut irregular shaped patterns using saber and band saws to provide contour required.

Achievement Indicators: The learner:

	Yes	No
1. Determined width of saw blade -	____	____
2. Checked and made sure all layouts were clearly visable -	____	____
3. Adjusted saw guide to proper height -	____	____
4. Made smooth cut on waste side of line or cut to line if required -	____	____

Criteria: Competence in the task will be recognized when the pattern is transferred to the stock and cut to the pattern according to specifications.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 1

Task: Estimate interior underlayment using appropriate tools and equipment to ensure adequate material to complete the job.

Achievement Indicators: The learner:

	Yes	No
1. Measured length of floor in feet -		
2. Measured width of floor in feet -		
3. Multiplied length of width to determined floor area in square feet -		
4. Divided floor area by 32 to determined number of sheets of underlayment -		
5 . Rounded figure upward to nearest full sheet -		
6. Recorded estimate -		

Criteria: Competence in the task will be recognized when the underlayment covers floor with little or no excess.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 2

Task: Install underlayment over subflooring using appropriate tools and equipment to provide a finish surface for floor covering.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans for underlayment treatment -	____	____
2. Cleaned subfloor -	____	____
3 . Checked floor for protrusions and eliminate -	____	____
4. Embedded felt over adhesive -	____	____
5. Measured and cut first sheet of underlayment -	____	____
6. Laid underlayment in place, gapped 1/16" -	____	____
7. Nailed underlayment -	____	____
8. Set nails below surface -	____	____
9. Repeated steps 7-10 for all subsequent sheets, staggering joints -	____	____
10. Filled all joints and nail depressions with compound -	____	____

Criteria: Competence in the task will be recognized when the joint compound is spread completely flat with surface.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 3

Task: Estimate doors and jambs using appropriate tools and equipment to ensure adequate material to complete the job.

Achievement Indicators: The learner:

	Yes	No
1. Measured widths of rough openings -	____	____
2. Subtracted 2 inches from rough opening to determine actual door sizes -	____	____
3. Counted number of doors -	____	____
4. Grouped doors according to size -	____	____
5. Multiplied number of doors by 2 to determine the amount of side jamb material -	____	____
6. Listed widths of all rough openings to determine total amount of jamb head material -	____	____
7. Recorded estimates -	____	____

Criteria: Competence in the task will be recognized when the doors and jambs are correct to meet needs in quantity and size.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors	**Duty No.** D **Task No.** 4

Task: Hang interior door using appropriate tools and equipment to enable the closing and opening of the door.

Achievement Indicators: The learner:

	Yes	No
1. Determined type and size of jambs and door from plans -		
2. Measured and cut head jamb to opening width -		
3. Measured and cut side jambs to opening length -		
4. Nailed jambs and jamb head together -		
5. Set assembly into opening -		
6. Leveled head -		
7. Shimmed hinge side straight and plumb -		
8. Cut stile extensions off door -		
9. Planed door to width beveling lock side -		
10. Routed out hinge cutouts used jig on door and jamb -		
11. Secured hinge sections to all hinge mortises with wood screws -		
12. Nailed jamb to studs through shims -		
13. Measured and cut door stop material -		
14. Nailed door stops in place temporarily -		
15. Held door in place and installed hinge pins -		
16. Checked door for fit operation making any necessary adjustments -		
17. Installed lockset and latch -		
18. Checked fit against stop and permanently nailed stop -		

Criteria: Competence in the task will be recognized when the door opens and closes freely.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors

Duty No. D

Task No. 5

Task: Install interior jamb using appropriate tools and equipment to provide a framework for the door.

Achievement Indicators: The learner:	Yes	No
1. Compared size of jamb with opening -	____	____
2. Nailed head jamb into dados of side jambs -	____	____
3. Set jamb in rough opening -	____	____
4. Shimmed side jambs at head -	____	____
5. Checked head jamb for level and square -	____	____
6. Shimmed side jambs at head and nailed -	____	____
7. Plumbed side of jamb, shimmed and nailed -	____	____
8. Shimmed second side of jamb and nailed -	____	____

Criteria: Competence in the task will be recognized when the jamb is square, plumb, and level and straight.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors	**Duty No.** D
	Task No. 6

Task: Install prehung door unit using appropriate tools and equipment to provide a finished opening and closing unit upon completion.

Achievement Indicators: The learner:	Yes	No
1. Separated jamb halves -	____	____
2. Placed half containing door into opening -	____	____
3. Placed wedges to center and hold door in place -	____	____
4. Adjusted shims until jamb was plumb -	____	____
5. Nailed hinge side through shims -	____	____
6. Adjusted gap between head jamb and door -	____	____
7. Adjusted gap between lock side jamb and door -	____	____
8. Fitted other jamb half into opposite side of opening -	____	____
9. Checked door operation -	____	____
10. Nailed casing into studs -	____	____

Criteria: Competence in the task will be recognized when the door will open and close easily without rubbing jamb.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors

Duty No. D

Task No. 7

Task: Cut molding using appropriate tools and equipment, to allow jointing of materials.

Achievement Indicators: The learner:

	Yes	No
1. Measured length and marked top edge of material to be cut -	____	____
2. Set miter saw at desired angle -	____	____
3. Placed material in miter box or on bed -	____	____
NOTE: Take care not to damage material in any way.		
4. Aligned saw tooth to mark and cut -	____	____
NOTE: Use light even strokes to prevent splintering.		

Criteria: Competence in the task will be recognized when the finished pieces fit closely on internal corners and form a straight, plumb surface or line.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 8

Task: Case interior opening using appropriate tools and equipment, to provide a finished surface.

Achievement Indicators: The learner:	Yes	No
1. Laid out casing for sides and head -		
2. Laid out additional material for miters -		
3. Cut casings -		
4. Squared bottoms of side casings -		
5. Measured for head between pencil lines -		
6. Cut 45° miter on each end of head -		
7. Nailed head to jamb on pencil line - CAUTION: Do not split casing.		
8. Held side casing in place and marked -		
9. Cut 45° miters on side casing -		
9a. Beveled backside of miter -		
10. Fitted side casing with block plane -		
11. Nailed side casing to jamb along pencil line - CAUTION: Do not split casing.		
12. Nailed ends of miters, 2" from ends approximately		
13. Nailed side casing to wall -		
14. Set all nails -		

Criteria: Competence in the task will be recognized if the casing does not split when nailed and all nails are set.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interior

Duty No. D

Task No. 9

Task: Install double-acting door using appropriate tools and equipment to provide a door that will swing easily in both directions without rubbing jamb.

Achievement Indicators: The learner:

	Yes	No
1. Installed hinge floor plate to floor on hinge side of opening -	____	____
2. Placed door in opening and placed shims around perimeter to hold in position -	____	____
3. Marked position of floor plate on bottom rail -	____	____
4. Checked plumb and transferred measurement from jamb to bottom pivot pint to top of door and to head jamb -	____	____
5. Removed door and made mortises in top and bottom rails for hinge pivots -	____	____
6. Installed top plate at point marked on head jamb -	____	____
7. Installed swivel hinges in mortises -	____	____
8. Replaced door in opening and engaged hinge pivots in plates -	____	____
9. Checked door operation and adjusted if necessary -	____	____

Criteria: Competence in the task will be recognized when the door is installed properly and swings back and forth easily and returns to closed position.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 10

Task: Install folding door using appropriate tools and equipment to provide a door that will work smoothly and close tightly against jamb.

Achievement Indicators: The learner:	Yes	No
1. Marked position of top track on head jamb -	____	____
2. Plumbed down and marked position of bottom track on floor -	____	____
3. Installed top track as per manufacturer's instructions -	____	____
4. Installed bottom track as per manufacturer's instructions -	____	____
5. Assembled door unit and pivots as per manufacturer's instructions -	____	____
6. Installed door on tracks -	____	____
7. Checked operation and adjusted if necessary -	____	____
8. Installed latch or handle hardware -	____	____

Criteria: Competence in the task will be recognized when the work is done according to industrial standards.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors	**Duty No.** D **Task No.** 11

Task: Install sliding door using appropriate tools and equipment to provide a door that fits against side jambs and rolls smoothly across track.

Achievement Indicators: The learner:	Yes	No
1. Assembled door frame as per manufacturer's instructions -	____	____
2. Installed top track -	____	____
3. Plumbed down and installed bottom track -	____	____
4. Installed rollers (glides) to doors -	____	____
5. Placed doors in opening and engaged rollers in track as per manufacturer's instructions -	____	____
6. Checked doors for plumb and fit against jambs and adjusted if necessary -	____	____
7. Installed decorative hardware -	____	____

Criteria: Competence in the task will be recognized when the work is done according to industrial standards.

Tools and Equipment:	**Resources:**

Duty:	Trimming the Interiors	**Duty No.**	D
		Task No.	12

Task: Install bi-fold door using appropriate tools and equipment to provide doors that slide smoothly in the track.

Achievement Indicators:

The learner:	Yes	No
1. Installed top-track to head jamb -	____	____
2. Located and installed bottom track to floor -	____	____
3. Installed pivots in top and bottom of swinger door panel -	____	____
4. Installed slide pin in top and bottom of sliding door panel -	____	____
5. Placed doors in opening, engaging all pivots and pins in their hinges -	____	____
6. Checked plumb; fitted and adjusted if necessary -	____	____
7. Installed decorative hardware -	____	____

Criteria: Competence in the task will be given when the work is done according to industrial standards.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 13

Task: Install pocket door using appropriate tools and equipment to provide a door that will close firmly against jamb.

Achievement Indicators:

The learner:	Yes	No
1. Attached roller assemblies to top of door panel as per manufacturer's instructions -	____	____
2. Lifted door into packet and engaged rollers in track -	____	____
3. Adjusted door height and plumb with adjusting screws -	____	____
4. Installed door guides to split jamb -	____	____
5. Installed rubber bumper to split stud -	____	____
6. Checked operation of door and made any needed adjustments -	____	____
7. Installed handle -	____	____

Criteria: Competence in the task will be recognized when the work is done according to industrial standards.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 14

Task: Estimate finish hardware using appropriate tools and equipment to ensure adequate material to complete job.

Achievement Indicators:

The learner:	Yes	No
1. Hardware needs for:		
a. Counted number of passage latch sets -	____	____
b. Counted number of passage lock sets -	____	____
c. Counted number of keyed entrance locks -	____	____
d. Counted number of mortise locks -	____	____
e. Counted number of deadbolts -	____	____
f. Counted number of cabinet pulls -	____	____
g. Counted number of hinges -	____	____
2. Noted any variations in size and style -	____	____
3. Recorded total number -	____	____

Criteria: Competence in the task will be recognized when the hardware meets specifications.

Tools and Equipment:

Resources:

Duty: Trimming the Interior

Duty No. D

Task No. 15

Task: Install cylinder lockset using appropriate tools and equipment to allow the door to close easily and lock firmly.

Achievement Indicators: The learner:	Yes	No
1. Wedged door open -	____	____
2. Measured up from floor to mark position for knob -	____	____
3. Applied lockset template to door -	____	____
4. Marked centers of holes in face and edge for stile -	____	____
5. Bored hole from outside through door as specified in lock manufacturer's instructions -	____	____
6. Bored hole in edge of door for latchbolt as per instructions -	____	____
7. Scored outline of latchbolt plate on door edge -	____	____
8. Chiseled out mortise for latchbolt plate -	____	____
9. Inserted latchbolt and screwed plate into door -	____	____
10. Disassembled knob unit -	____	____
11. slipped outside half through hole, sliding machine screws, spindle and locking bar through holes in latchbolt -	____	____
12. Aligned inside knob half with spindle and locking bar -	____	____
13. Tightened screws -	____	____
14. Removed door wedge and checked operation of assembly -	____	____
15. Closed door and marked position of strike plate on jamb -	____	____
16. Chiseled out mortise for strike plate -	____	____
17. Screwed strike plate into jamb -	____	____
18. Checked lockset operation -	____	____

Criteria: Competence in the task will be recognized when the door closes easily and locks firmly.

Tools and Equipment:	**Resources:**

Duty:	Trimming the Interiors	**Duty No.**	D
		Task No.	16

Task: Install mortise lockset using appropriate tools and equipment to allow the door to close and latch smoothly.

Achievement Indicators: The learner:

		Yes	No
1.	Measured up from floor for location of lock -	____	____
2.	Held lock in position and marked outline on edge of door -	____	____
3.	Marked location of spindle and keyhole on side of door -	____	____
4.	Bored holes for spindle and key with drill -	____	____
5.	Bored series of overlapping holes, depth equal to width of lock and height equal to height of lock between marks on edge of door -	____	____
6.	Chiseled out sides to square mortise -	____	____
7.	Inserted lock into mortise -	____	____
8.	Marked outline of lockface on door edge -	____	____
9.	Removed lock and chiseled out area to a depth equal to thickness of lock plate -	____	____
10.	Installed lock with screws supplied -	____	____
11.	Closed door and marked position of latch on door jamb -	____	____
12.	Held strike plate at this position and marked outline on jamb -	____	____
13.	Chiseled out jamb for strike plate -	____	____
14.	Installed strike plate with screws supplied -	____	____
15.	Checked operation of door -	____	____

Criteria: Competence in the task will be recognized when the work is done according to industrial standards.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors	**Duty No.** D
	Task No. 17

Task: Install closer using appropriate tools and equipment to allow the door to close smoothly and slowly without banging.

Achievement Indicators: The learner:	Yes	No
1. Located and marked position of anchor plate on hinge side of door jamb as per manufacturer's instructions -	____	____
2. Installed anchor plate with screws provided -	____	____
3. Located and marked position of swinger plate on door as per manufacturer's instructions -	____	____
4. Installed swinger plate with screws provided -	____	____
5. Closed door and installed closer between anchor and swinger -	____	____
6. Checked operation of door and adjusted closer tension as per manufacturer's instructions -	____	____

Criteria: Competence in the task will be recognized when the work is done according to industrial standards.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors

Duty No. D

Task No. 18

Task: Install door plate using appropriate tools and equipment to provide a centering device for the latch.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans for location of door plate -	____	____
2. Measured and cut door plate material -	____	____
3. Selected bit -	____	____
4. Drilled evenly spaced holes around perimeter of plate -	____	____
5. Held plate in position on door and drove screw holes into door panel -	____	____
6. Sanded rough edges -	____	____

Criteria: Competence in the task will be recognized when the plate is correctly placed and there are not rough edges.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 19

Task: Install flush bolt using appropriate tools and equipment to provide a means of locking the door.

Achievement Indicators: The learner:	Yes	No
1. Determined bolt height on door -	____	____
2. Held retracted flush bolt at pre-determined height to edge of door -	____	____
3. Marked position of screw holes -	____	____
4. Selected bit and drilled pilot holes -	____	____
5. Installed bolt to door with wood screws -	____	____
6. Closed door and marked position of receiver of jamb -	____	____
7. Chiseled mortise for receiver -	____	____
8. Drilled pilot holes for receiver -	____	____
9. Installed receiver to jamb with wood screws -	____	____
10. Closed door and checked operation of bolt assembly -	____	____

Criteria: Competenece in the task will be recognized when the bolt engages receiver smoothly and does not interfere with door swing when retracted.

Tools and Equipment:

Resources:

Duty: Trimming the Interior	**Duty No.** D **Task No.** 20

Task: Install baseboards using appropriate tools and equipment to provide a finished surface where wall and floor meet.

Achievement Indicators: The learner:	Yes	No
1. Checked working drawings for base and shoe detail -	____	____
2. Located studs and marked location on floor -	____	____
3. Measured baseboard -	____	____
4. Cut baseboard -	____	____
5. Fitted first piece of baseboard where floor and wall meet -	____	____
6. Nailed baseboard into studs and bottom plate -	____	____
7. Brought next piece of base into corner -	____	____
8. Coped joint -	____	____
9. Mitered outside corners and butt joints -	____	____
10. Repeated steps 7-9 until all baseboard was installed -	____	____
11. Cut and fitted base to door casing -	____	____
12. Measured base shoe, if required -	____	____
13. Cut base shoe -	____	____
14. Nailed base shoe to floor -	____	____
15. Set all nails -	____	____

Criteria: Competence in the task will be recognized when all the baseboard is installed correctly and all nails are set.	
Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors

Duty No. D

Task No. 21

Task: Install ceiling molding using appropriate tools and equipment to provide a finished surface at wall and ceiling.

Achievement Indicators:

The learner:	Yes	No
1. Checked plans and specifications for molding detail -	____	____
2. Measured length of one long wall at ceiling level -	____	____
3. Measured and cut molding -	____	____
4. Squared molding ends -	____	____
5. Nailed molding in place -	____	____
6. Coped second piece of molding to meet piece already installed -	____	____
7. Cut and nailed molding until room is completed -	____	____
8. Coped inside corners -	____	____
9. Mitered outside corners and butt joints -	____	____
10. Set nails -	____	____

Criteria: Competence in the task will be recognized when the inside corners are coped, outside corners and butt joints are mitered.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors	**Duty No.** D **Task No.** 22

Task: Fill nail holes using appropriate tools and equipment to provide a smooth finished surface on the trim.

Achievement Indicators: The learner:

	Yes	No
1. Chose correct size nail set -	____	____
2. Set nail below surface of material -	____	____
3. Filled hole by forcing filler into hole until slightly over full -	____	____
4. Sanded filler smooth and leveled with surface of wood after filler had thoroughly dried or hardened -	____	____

Criteria: Competence in the task will be recognized when the surface of hole blends evenly and smoothly with rest of wood surface.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors	**Duty No.** D
	Task No. 23

Task: Install cabinet using appropriate tools and equipment to provide secured component.

Achievement Indicators: The learner:

	Yes	No
1. Checked plans for location of cabinet -	____	____
2. Located studs behind cabinet -	____	____
3. Drilled pilot holes through cabinet braces at studs -	____	____
4. Set cabinet in position and marked -	____	____
5. Checked cabinet for level -	____	____
6. Shimmed underneath cabinet, if necessary -	____	____
7. Screwed cabinet to wall with wood screws -	____	____
8. Checked stiles for fit and adjusted, if necessary -	____	____
9. Drilled pilot holes at top front and bottom front of cabinet's side wall -	____	____
10. Bolted cabinet -	____	____

Criteria: Competence in the task will be recognized when the cabinet is level and tight to walls and any adjacent cabinets.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors

Duty No. D

Task No. 24

Task: Estimate prefabricated cabinets using appropriate tools and equipment to ensure adequate component.

Achievement Indicators: The learner:	Yes	No
1. Determined location of sink, range, oven, dishwasher and refrigerater units -	____	____
2. Determined location of corner cabinets on plans -	____	____
3. Located ending points of area to receive cabinets -	____	____
4. Measured distance from unit to corner cabinet or end point -	____	____
5. Rounded figure downward to nearest 3 inch multiple -	____	____
6. Section distance into sizes of cabinets desired -	____	____
7. Repeated steps 4 through 6 toward all corner cabinets and end points to receive cabinets -	____	____
8. Determined location of valances, range hoods, oven, and refrigerater units from plans -	____	____
9. Repeated procedure 2 through 7 for wall cabinets -	____	____
10. Recorded calculations -	____	____

Criteria: Competence in the task will be recognized when the cabinets fit into space provided.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 25

Task: Assemble prefabricated cabinet using appropriate tools and equipment to provide a secure component.

Achievement Indicators: The learner:

	Yes	No
1. Unpacked prefabricated cabinet -	____	____
2. Checked parts with packing list -	____	____
3. Read manufacturer's instructions -	____	____
4. Trial-assembled cabinet components -	____	____
a. top b. back c. ends d. drawer frame e. division f. face frame g. bottom h. drawer i. drawer guides j. base frame		
5. Squared and aligned components -	____	____
6. Disassembled components -	____	____
7. Assembled and glued components -	____	____
8. Wiped off excess glue -	____	____

Criteria: Competence in the task will be recognized when the cabinets are installed correctly and drawers open with sticking and wobling not happening.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 26

Task: Estimate material for built-ins using appropriate tools and equipment to ensure adequate components to complete the job.

Achievement Indicators: The learner: Yes No

1. Checked plans and specifications for locations and dimensions - ____ ____
2. Measured length of area to receive built-in - ____ ____
3. Measured depth of area to receive built-in - ____ ____
4. Measured height of area to receive built-in - ____ ____
5. Multiplied length by depth to determine area of horizontal surface - ____ ____
6. Multiplied height by depth to determine area of vertical surface - ____ ____
8. Counted number of horizontal surfaces desired - ____ ____
9. Counted number of side surfaces desired - ____ ____
10. Counted number of face surfaces desired - ____ ____
11. Multiplied each number of surfaces by area of corresponding surface to determine total horizontal, side, and face areas - ____ ____
12. Added all areas together to determine total square footage of material needed - ____ ____
13. Recorded calculations - ____ ____

Criteria: Competence in the task will be recognized when the material is sufficient to form built-in unit with little or no excess.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 27

Task: Construct built-in cabinet using appropriate tools and equipment to provide secure components.

Achievement Indicators: The learner:	Yes	No
1. Checked plans and specifications for dimensions of unit -	____	____
2. Checked size of rough openings -	____	____
3. Ripped base material from straight stock -	____	____
4. Measured and cut side base members from straight stock -	____	____
5. Measured and cut back base member from straight stock -	____	____
6. Measured and cut front base member from finish stock -	____	____
7. Rabbeted ends of base member -	____	____
8. Mitered exposed sides of front base member -	____	____
9. Assembled base -	____	____
10. Glued and fastened base -	____	____
11. Checked base for square -	____	____
12. Measured and cut bottom shelf -	____	____
13. Nailed shelf on base -	____	____
14. Set nails and putty holes -	____	____
15. Measured and cut frame members -	____	____
16. Measured, cut, and notched side panels -	____	____
17. Measured and cut back panel -	____	____
18. Glued and nailed frame members to dies and back -	____	____
19. Glued and nailed side panels to base -	____	____
20. Glued and nailed back panel to base and side panels -	____	____
21. Checked all corners for square and plumb -	____	____
22. Cut triangular blocks and glued in corners to maintain square, if necessary -	____	____

Criteria: Competence in the task will be recognized when the joints fit with no gaps, and there are no hammer marks or prints on finished wood.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors	**Duty No.** D **Task No.** 28

Task: Estimate interior paneling using appropriate tools and equipment to ensure adequate materials to complete the task.

Achievement Indicators: The learner:

	Yes	No
1. Measured length of walls in feet -	____	____
2. Measured height of walls in feet -	____	____
3. Multiplied length x height to determined wall area in square footage -	____	____
4. Measured length of paneling -	____	____
5. Measured width of paneling -	____	____
6. Multiplied length x width of paneling to determine unit coverage -	____	____
7. Divided wall area by unit coverage to determine number of panels -	____	____
8. Recorded estimate -	____	____

Criteria: Competence in the task will be recognized when the paneling covers all interior walls with little or no excess.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors	**Duty No.** D **Task No.** 29

Task: Estimate closet accessories using appropriate tools and equipment to ensure adequate material to complete job.

Achievement Indicators: The learner:	Yes	No
1. Measured length of closet -	____	____
2. Determined number of shelves from specifications -	____	____
3. Determined number of closet rods from specifications -	____	____
4. Multiplied number of shelves by length of closet to determine linear feet of shelving -	____	____
5. Calculated support materials necessary for one of the following support methods -	____	____
a. bracket supports:		
(1) Counted support bracket for every 2' of shelving -	____	____
b. wood supports:		
(1) Added 3' to each length of closet -	____	____
(2) Multiplied total by number of shelves per closet -	____	____
(3) Totaled linear footage of all shelving -	____	____
6. Recorded calculations -	____	____

Criteria: Competence in the task will be recognized when the accessories meet specifications.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors

Duty No. D

Task No. 30

Task: Install shelving using appropriate tools and equipment to provide an area for storage.

Achievement Indicators: The learner: Yes No

Adjustable Shelving

1. Checked location of shelving on working drawings - ____ ____
2. Screwed shelf standards to wall with screws provided - ____ ____
3. Plumbed shelf standards - ____ ____
4. Leveled standards with each other - ____ ____
5. Attached shelf brackets - ____ ____
6. Laid shelf on brackets - ____ ____

Non-Adjustable Shelving

1. Checked working drawings for shelf dimensions - ____ ____
2. Measured stock - ____ ____
3. Cut shelf - ____ ____
4. Measured cleats - ____ ____
5. Cut cleats - ____ ____
6. Nailed cleats to side walls - ____ ____
7. Cut and nailed supports, if necessary - ____ ____
8. Laid shelf on cleats.

Criteria: Competence in the task will be recognized when the shelves are installed and they don't wobble.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 31

Task: Estimate acoustical ceiling material using appropriate tools and equipment to ensure adequate material to complete job.

Achievement Indicators: The learner:	Yes	No
1. Measured length of ceiling area -	____	____
2. Measured width of ceiling area -	____	____
3. Calculated materials for:		
a. tongue and groove		
(1) Multiplied length by width of ceiling area to determine number of tiles and linear footage of furring strips needed -	____	____
b. suspended ceilings		
(1) Divided width of ceiling area by four to determine number of main runners -	____	____
(2) Divided length of room by two -	____	____
(3) Multiplied result by 1 plus number of main runners to determine number of 4' cross tees -	____	____
(4) Multipled length of width of room -	____	____
(5) Divided result by eight to determine number of 2' x 4' ceiling tiles needed -	____	____
4. Recorded calculations -	____	____

Criteria: Competence in the task will be recognized when the material covers ceiling area completely with little or no excess.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors	**Duty No.** D
	Task No. 32

Task: Install suspended T-grid ceiling using appropriate tools and equipment to provide a ceiling with a suspended grid.

Achievement Indicators: The learner:	Yes	No
1. Checked plans and specifications for ceiling height -	____	____
2. Calculated and marked height of wall angle on wall near corners -	____	____
3. Snapped chalk lines and checked for level -	____	____
4. Designed ceiling layout for tee locations -	____	____
5. Nailed wall angle with tops at chalk line overlapping at inside corners and mitering at outside corners -	____	____
6. Marked ceiling joists for wire hanger positions -	____	____
7. Screwed eye hooks at marked locations -	____	____
8. Hung wire from hooks -	____	____
9. Measured distance for main tees -	____	____
10. Cut main tees to length -	____	____
11. Hung main tees from wire at specified level -	____	____
12. Interlocked main tees at ends -	____	____
13. Fitted cross tees between main tees -	____	____
14. Measured distance from wall angles to main tees -	____	____
15. Cut cross tees to length -	____	____
16. Interlocked cross tees resting ends on wall angles -	____	____
17. Leveled gridwork -	____	____
18. Wrapped wires to hold gridwork in place -	____	____
19. Set full ceiling panels into gridwork -	____	____
20. Measured dimensions of spacing needing partial panels -	____	____
21. Cut panels to size -	____	____
22. Set cut panels in place -	____	____

Criteria: Competence in the task will be recognized when the ceiling is level and supported every 4" by wire.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 33

Task: Install tongue and groove ceiling tiles using appropriate tools and equipment to provide a tongue and groove finished product.

Achievement Indicators: The learner:

	Yes	No
1. Located centerline of ceiling perpendicular to joists -	____	____
2. Nailed furring strips along ceiling centerline -	____	____
3. Nailed furring strips at 1' increments from center strip to sides of ceiling -	____	____
4. Chalked line down center of furring strip closest to wall -	____	____
5. Located centerline of ceiling perpendicular to furring -	____	____
6. Marked 1' increments along end furring strips from centerline to front wall -	____	____
7. Chalked line at marks closet to front wall -	____	____
8. Cut ceiling tile with utility knife so flanged edges line up with chalk line -	____	____
9. Stapled flanged edges of corner tile to furring -	____	____
10. Inserted tongue edge of subsequent tiles into groove edge of preceding tiles -	____	____
11. Stapled flanges of tile to furring -	____	____
12. Repeated procedures 10 and 11 until ceiling was completely covered -	____	____

Criteria: Competence in the task will be recognized when the ceiling tiles are squarely interlocked with equal margins at walls.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 34

Task: Estimate stairway materials using appropriate tools and equipment to ensure adequate materials.

Achievement Indicators: The learner:

	Yes	No
1. Measured length of stringer -	____	____
2. Multiplied length by 2 for linear footage stringers -	____	____
3. Measured vertical in inches -	____	____
4. Determined riser and tread sizes -	____	____
5. Measured length of hand rails -	____	____
6. Determined spacing between balusters from specifications -	____	____
7. Divided length of handrail by spacing between balusters to determine number of balusters -	____	____
8. Recorded estimates -	____	____

Criteria: Competence in the task will be recognized when the materials are sufficient to build stairway with little or no excess.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 35

Task: Install wood newel post, balusters and railing using appropriate tools and equipment to provide a finished railing around floor openings.

Achievement Indicators: The learner:

	Yes	No
1. Checked dimensions of post and railing material on plans -	____	____
2. Checked dimensions of subbase -	____	____
3. Cut newel to length -	____	____
4. Set newel post into position -	____	____
5. Marked location -	____	____
6. Shimed base of newel post to plumb post -	____	____
7. Marked location of grooves for stringer, tread and riser -	____	____
8. Routed grooves -	____	____
9. Trimmed bottom riser to length -	____	____
10. Notched bottom tread to fit newel -	____	____
11. Glued tread and riser together -	____	____
12. Fitted stringer in newel groove -	____	____
13. Positioned newel so all grooves fit -	____	____
14. Fitted tread-riser into opposite stringer -	____	____
15. Checked newel for plumb -	____	____
16. Spiked newel to floor -	____	____
17. Measured for length of rail(s)-	____	____
18. Cut bottom subrail -	____	____
19. Nailed rail to stringer -	____	____
20. Checked plans for baluster spacing -	____	____
21. Cut fillets to size -	____	____
22. Beveled ends -	____	____

	Yes	No
23. Glued and fit fillets and balusters into rail -		
24. Marked baluster locations on rail -		
25. Cut upper subrail to length -		
26. Wedged fillets -		
27. Fitted subrail over balusters -		
28. Filled gaps with glue -		
29. Centered railing over subrail -		
30. Drilled holes through fillets into railing -		
31. Attached railing with screws -		
32. Attached end of railing to newel -		

Criteria: Competence in the task will be recognized when the insulation is plumb level and securely fastened to surface.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors

Duty No. D

Task No. 36

Task: Install metal newel post and railing using appropriate tools and equipment to provide a finished area around floor openings.

Achievement Indicators: The learner:

	Yes	No
1. Determined dimensions of post(s) and railing from plans -		
2. Checked dimensions of subbase -		
3. Read manufacturer's directions for prefabricated railing -		
4. Checked plans for detail -		
5. Set newel posts into position -		
6. Marked location of holes in flange plate on subbase -		
7. Prepared subbase to receive fasteners -		
8. Set newel posts into position -		
9. Fastened to subbase -		
10. Set railing section into position -		
11. Checked for plumb and level -		
12. Fastened railing to newel post -		

Criteria: Competence in the task will be recognized when the post and railing are plumb, level, and securely fastened to subbase.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 37

Task: Install medicine cabinet using appropriate tools and equipment to provide a storage space.

Achievement Indicators: The learner:

		Yes	No
1.	Checked plans for location of cabinet -		
2.	Determined dimensions of rough opening needed for cabinet from manufacturer's instructions -		
3.	Compared dimensions of rough opening and dimensions of cabinet, adjusted if necessary -		
4.	Checked opening for square -		
5.	Removed sliding doors, but not hinged door, of cabinet -		
6.	Fitted cabinet into opening with cabinet flange flush against wall on all sides -		
7.	Checked for level and plumb -		
8.	Shimmed as required -		
9.	Attached cabinet to studs with screws and washers -		
10.	Replaced sliding doors -		

Criteria: Competence in the task will be recognized when the medicine cabinent. is securly installed in wall opening with flanges tight to wall.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 38

Task: Install threshold using appropriate tools and equipment to provide a barrier under the door.

Achievement Indicators:

The learner:	Yes	No
1. Measured width of door opening -	____	____
2. Cut threshold to length -	____	____
3. Set threshold in place -	____	____
4. Drilled pilot holes in floor for screws -	____	____
5. Drove anchors into holes if floor was concrete -	____	____
6. Screwed threshold to floor -	____	____
7. Adjusted threshold to fit tightly at bottom of door as per manufacturer's instruction.-	____	____

Criteria: Competence in the task will be recognized when the threshold meets bottom of closed door without gaps.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors	**Duty No.** D **Task No.** 39

Task: Install panic bar using appropriate tools and equipment to provide a quick opening device on the door.

Achievement Indicators: The learner:	Yes	No
1. Located and marked all screw holes as per manufacturer's instructions -	____	____
2. Selected bit size and drill all holes as marked -	____	____
3. Located and marked mortises in jamb and floor as per manufacturer's instructions -	____	____
4. Drilled mortise holes -	____	____
5. Assembled panic bar and locking mechanism as per manufacturer's instructions -	____	____
6. Installed assembly and hardware -	____	____
7. Checked operation of door -	____	____
8. Adjusted if necessary -	____	____

Criteria: Competence in the task will be recognized when the panic bar operates in accordance with manufacturer's instructions, and doors open and close with out sticking.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors	**Duty No.** D **Task No.** 40

Task: Install closet accessories using appropriate tools and equipment to provide adequate components inside the closet to meet specifications.

Achievement Indicators: The learner:

		Yes	No
1.	Checked working drawings for location of shelf cleats -		
2.	Marked locations of shelf cleats on back wall -		
3.	Marked level line on back wall and side walls -		
4.	Cut shelf cleats -		
5.	Fitted shelf cleats -		
6.	Fastened cleats to walls -		
7.	Cut shelf -		
8.	Fitted shelf -		
9.	Fastened shelf to cleats -		
10.	Attached shelf support, if necessary -		
11.	Adjusted closet rod to fit between side wall cleats -		
12.	Fastened rod to cleats on side walls of closet -		
13.	Checked rod and shelf for level -		

Criteria: Competence in the task will be recognized when the shelf is installed correctly.

Tools and Equipment:	**Resources:**

Duty: Trimming the Interiors

Duty No. D

Task No. 41

Task: Trim and cut laminate joints using appropriate tools and equipment to provide a finished surface.

Achievement Indicators: The learner:

	Yes	No
1. Adjusted base plates and edge guides on router -	____	____
2. Adjusted cutterhead on router to correct depth -	____	____
3. Trimmed laminate overhands with bevel trim bit to achieve a smooth beveled joint where a plastic top and an edge band meet -	____	____
4. Used straight edge for laminate cutters -	____	____
5. Used hacksaw and file for tight areas -	____	____

Criteria: Competence in the task will be recognized when the cuts conform to desired contour cuts are uniform and no gaps exist at joints.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors

Duty No. D

Task No. 42

Task: Cut gains for door hinges using portable router to provide flush installation of hinges.

Achievement Indicators: The learner:

	Yes	No
1. Set and adjusted the templates to the door hinge size -	____	____
2. Located the gains to exact corresponding measurements on both door and jamb -	____	____
3. Made the cuts to the exact depth to accommodate the hinges -	____	____
4. Left no visable space between edges of hinges and adjacent wood -	____	____
5. Meshed hinges accurately without force -	____	____

Criteria: Competence in the task will be recognized when gains are located as required on door and door jamb, space does not exist between edges, and hinges mesh without force.

Tools and Equipment:

Resources:

Duty: Trimming the Interiors	**Duty No.** D
	Task No. 43

Task: Install disappearing stair unit using appropriate tools and equipment to provide a means of gaining access from one level to another.

Achievement Indicators: The learner:	Yes	No
1. Determined rough opening required as per manufacturer's instructions -	____	____
2. Cut rough opening -	____	____
3. Measured and cut headers -	____	____
4. Nailed headers in position -	____	____
5. Measured and checked opening for square -	____	____
6. Located and drilled pilot holes for hinges as per manufacturer's instructions.	____	____
7. Fitted stair unit in place -	____	____
8. Secured with wood screws -	____	____
9. Checked operation and adjusted if necessary -	____	____
10. Measured and cut plywood trapdoor -	____	____
11. Installed plywood trapdoor -	____	____

Criteria: Competence in the task will be recognized when the unit is installed securly and operates smoothly.

Tools and Equipment:	**Resources:**

Duty: Using Employability Skills	**Duty No.** E **Task No.** 1

Task: Investigate employment information using sources of employment information to identify employment opportunities.

Achievement Indicators: The learner:

	Yes	No
1. Developed a list of the prime sources of information concerning opportunities for employment -	____	____
2. Described special procedures, if any, required to utilize services, information, etc. -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:

Resources:

Duty: Using Employability Skills

Duty No. E

Task No. 2

Task: Identify job requirements using health, physical, legal, education, and other occupational information to determine the requirements of an occupation.

Achievement Indicators: The learner: Yes No

1. Listed the significant requirements (health, physical, legal, education, etc.) of the appropriate occupation - _____ _____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:

Resources:

Duty: Using Employability Skills

Duty No. E

Task No. 3

Task: Acquire wage information using available resources to determine the approximate entry wages, general wage range, and significant fringe benefits for an occupation.

Achievement Indicators: The learner: Yes No

1. Listed the approximate entry wages, general wage range, and significant fringe benefits for the appropriate occupation - ____ ____
2. Compared these wages and fringe benefits with other selected occupations - ____ ____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:

Resources:

Duty: Using Employability Skills

Duty No. E

Task No. 4

Task: Identify significant non-wage job characteristics using available resources to determine shift requirements, union affiliation, apprenticeships, occupational hazards, characteristics of work environment and other significant job factors.

Achievement Indicators: The learner:

	Yes	No
1. Listed and described the significant non-wage characteristics (e.g., shift requirements, union affiliation, apprenticeships, occupational hazards, characteristics of work environment, etc.) -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:

Resources:

Duty: Using Employability Skills	**Duty No.** E **Task No.** 5

Task: Explore employment opportunities using available resources to describe local, regional, and national employment opportunities for an occupation.

Achievement Indicators: The learner:

	Yes	No
1. Described the local, regional, and national employment opportunities for the appropriate occupation -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:	**Resources:**

Duty: Using Employability Skills

Duty No. E

Task No. 6

Task: Analyze career ladder using available resources to describe job progression in an occupation.

Achievement Indicators: The learner:

	Yes	No
1. Described the career ladder associated with the appropriate occupational area -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:

Resources:

Duty: Using Employability Skills	**Duty No.** E **Task No.** 7

Task: Identify personal criteria with information about available alternatives using a decision-making situation and procedures and skills in decision-making to choose a job, further training or other alternatives.

Achievement Indicators: The learner:

	Yes	No
1. Compared personal criteria with information about a job, further training or other alternatives -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:	**Resources:**

Duty: Using Employability Skills

Duty No. E

Task No. 8

Task: Prepare a resume using personal information to apply for a job.

Achievement Indicators: The learner:	Yes	No
1. Prepared a resume -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:

Resources:

Duty: Using Employability Skills	**Duty No.** E **Task No.** 9

Task: Write a letter of application using personal notes to apply/inquire about a job.

Achievement Indicators: The learner:

	Yes	No
1. Wrote a letter of application/inquiry -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:	**Resources:**

Duty: Using Employability Skills	**Duty No.** E **Task No.** 10

Task: Complete a job application using personal notes to apply for a job.

Achievement Indicators: The learner:

	Yes	No
1. Completed a job application -	_____	_____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:	**Resources:**

Duty: Using Employability Skills	**Duty No.** E **Task No.** 11

Task: Demonstrate appropriate dress using a knowledge of job requirements to comply with standards of on-the-job dress and grooming.

Achievement Indicators: The learner:	Yes	No
1. Described and/or dressed in the attire of the appropriate occupational area, including:		
a. grooming -	____	____
b. required health and safety equipment -	____	____
c. uniforms -	____	____
d. other ______________________________ -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:	**Resources:**

Duty: Using Employability Skills	**Duty No.** E **Task No.** 12

Task: Complete a job interview using communication and interpersonal skills to become employed.

Achievement Indicators: The learner:

	Yes	No
1. Described and/or demonstrated appropriate characteristics for job applicants including:		
a. attire -	____	____
b. grooming -	____	____
c. conduct during the interview -	____	____
2. Described and/or demonstrated the interview process -	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:

Resources:

Duty: Using Employability Skills	**Duty No.** E **Task No.** 13

Task: Describe personal criteria using references to identify acceptable job offers.

Achievement Indicators: The learner:

	Yes	No
1. Listed personal criteria (financial, social, etc.) which described a job offer -	_____	_____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:	**Resources:**

Duty: Using Employability Skills	**Duty No.** E **Task No.** 14

Task: Demonstrate interpersonal skills to achieve successful relationships with others.

Achievement Indicators: The learner: Yes No

1. Identified probable causes for conflicts and at least one possible action to relieve the conflict - ____ ____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:	**Resources:**

Duty: Using Employability Skills	**Duty No.** E **Task No.** 15

Task: Identify source of continuing education for an occupation using available resources to identify career ladder alternatives.

Achievement Indicators: The learner: Yes No

1. Described the types and sources of related continuing education for the appropriate occupation and/or advancement within the career ladder associated with the occupation - ____ ____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:	**Resources:**

Duty: Using Employability Skills	**Duty No.** E **Task No.** 16

Task: Describe job termination procedures using a knowledge of the occupational area to leave a particular job.

Achievement Indicators: The learner:

	Yes	No
1. Described procedures and practices for terminating a job - .	____	____

Criteria: Competence in the task will be recognized when the achievement indicators are performed according to the satisfaction of the supervisor.

Tools and Equipment:	**Resources:**

STUDENT ACHIEVEMENT RECORD

CARPENTRY

STUDENT ____

INSTRUCTIONS:

Mark each student's level of competence according to the following guide:

LEVEL	GUIDE
1	Student has been exposed to task
2	Task accomplished with assistance
3	Task accomplished to criteria by student
4	Ability to teach or demonstrate the task to others

TASK	LEVEL	DATE
A. FRAMING THE STRUCTURE		
1. Estimate rough framing materials.		
2. Estimate windows.		
3. Identify framing members.		
4. Identify abbreviations commonly used in working with lumber.		
5. Stack lumber.		
6. Select proper hammer and drive various types and sizes of nails.		
7. Check and align installations for level and plumb.		
8. Read and measure.		
9. Cut lumber.		
10. Build saw horses.		
11. Identify defects and blemishes.		
12. Check foundation for squareness.		
13. Install beam in foundation beam pockets.		

TASK	LEVEL	DATE
A. FRAMING THE STRUCTURE (continued)		
14. Construct plywood box beam.		
15. Install steel beam.		
16. Install lally post.		
17. Install sill plate.		
18. Install floor joists.		
19. Frame floor opening.		
20. Install bridging.		
21. Install plyscore subflooring.		
22. Construct corner post.		
23. Construct partition backers.		
24. Frame window opening.		
25. Frame door opening.		
26. Frame exterior walls.		
27. Frame and align a partition wall.		
28. Install pocket door frame.		
29. Construct post and beam framing.		
30. Install metal studs.		
31. Install purlin.		
32. Install firestops.		
33. Install plywood corner bracing.		
34. Install diagonal bracing where necessary.		
35. Install exterior wall sheathing.		
36. Raise wall and install temporary bracing.		
37. Install ceiling joists.		
38. Install ceiling joists' strongbacks.		
39. Install backing nailers for lathe.		
40. Construct roof truss.		
41. Calculate the rise and run of a common roof.		
42. Determine length of rafters.		
43. Layout and install common rafters.		
44. Layout and install ridgeboard.		
45. Install hip rafters.		
46. Install hip jacks rafters.		

TASK	LEVEL	DATE
A. FRAMING THE STRUCTURE (continued)		
47. Install cripple jack rafters.		
48. Install valley rafters.		
49. Install valley jack rafters.		
50. Install gambrel roof rafters.		
51. Construct intersecting gable roof.		
52. Frame roof opening.		
53. Frame dormer.		
54. Install collar beams.		
55. Frame roof saddle above chimney.		
56. Frame snub gable.		
57. Install gable studs.		
58. Install roof overhangs.		
59. Install roof sheathing.		
60. Estimate roofing materials.		
61. Install roofing felt.		
62. Install metal drip edge.		
63. Install valley flashing.		
64. Install composite strip shingles.		
65. Install composite shingles - valley.		
66. Install composite shingles around roof opening.		
67. Install bonding shingles over dormer or roof appendage.		
68. Install composite shingles ridge cap.		
69. Install wood shingles/shakes.		
70. Install wood shingles/shakes on valley.		
71. Install wood shingles/shakes around roof opening.		
72. Install wood shingles/shakes-ridge cap.		
73. Install chimney flashing.		
74. Install roof vent.		
75. Install ridge vent.		
76. Install skylight.		
77. Install built-up roofs.		
78. Install roll roofing.		

TASK	LEVEL	DATE
A. FRAMING THE STRUCTURE (continued)		
79. Frame built-up stringer.		
80. Frame cleated stair stringer.		
81. Construct open riser stairs.		
82. Construct box stairs.		
83. Install prefabricated stairs.		
84. Install backing for hanging fixtures and cabinet.		
85. Cosntruct single pole scaffold.		
86. Construct double-pole scaffold.		
B. TRIMMING THE EXTERIORS		
1. Estimate siding.		
2. Construct rake cornice.		
3. Construct box cornice.		
4. Install wood fascia.		
5. Install wood soffit.		
6. Install aluminum fascia.		
7. Install aluminum soffit.		
8. Case exterior opening.		
9. Install window.		
10. Install drip cap.		
11. Install prefabricated storm unit.		
12. Install exterior pre-hung door.		
13. Install exterior door jamb.		
14. Hang exterior door.		
15. Caulk doors and windows.		
16. Install garage door.		
17. Install corner board for wood siding.		
18. Install bevel or lap siding.		
19. Install metal corner for siding.		
20. Install metal or vinyl siding.		
21. Install outside corner of wood shingle siding.		
22. Install wood shingle siding.		
23. Install panel siding.		

TASK	LEVEL	DATE
B. TRIMMING THE EXTERIORS (continued)		
21. Construct and install wood louvers.		
22. Install exterior shutters.		
23. Install gutter(s).		
24. Install downspout(s).		
C. TRIMMING THE INTERIORS - BASIC SKILLS		
1. Use personal protective equipment.		
2. Identify job safety requirements.		
3. Set up ladders.		
4. Service and maintain portable woodworking power tools.		
5. Sharpen circular saw blades.		
6. Sharpen and care for handsaws.		
7. Sharpen plane irons and care for hand planes.		
8. Shape edges on wood shaper.		
9. Sharpen twist drills and augers.		
10. Sharpen and care for wood chisels.		
11. Check and align installations for level and plumb.		
12. Copy and transfer angles.		
13. Select proper hammer and drive various types and sizes of nails.		
14. Read and measure.		
15. Glue wood stock.		
16. Bore holes with hand brace.		
17. Drill bore holes.		
18. Plane stock to specified sizes.		
19. Plane stock.		
20. Plane stock to thickness.		
21. Sand surfaces and edges.		
22. Sand finish materials by hand.		
23. Set nails.		
24. Joint stock.		
25. Shape stock.		

TASK	LEVEL	DATE
C. TRIMMING THE INTERIORS - BASIC SKILLS (continued)		
26. Install dowels in common wood joints.		
27. Install splines in common wood joints.		
28. Make butt joints.		
29. Make lap joints.		
30. Make mortise and tenon joint.		
31. Make rabbet joints.		
32. Make dado joints.		
33. Make miter joints.		
34. Cut compound miters.		
35. Rip plywood.		
36. Cut small trim stock.		
37. Cut irregular shapes.		
38. Cut chamfers.		
39. Cut dado.		
40. Cut holes.		
41. Cut large sheets of plywood and wallboard.		
42. Cut irregular shaped patterns.		
D. TRIMMING THE INTERIORS		
1. Estimate interior underlayment.		
2. Install underlayment over subflooring.		
3. Estimate doors and jambs.		
4. Hang interior door.		
5. Install interior jamb.		
6. Install pre-hung door unit.		
7. Cut molding.		
8. Case interior opening.		
9. Install double-acting door.		
10. Install folding door.		
11. Install sliding door.		
12. Install bi-fold door.		
13. Install pocket door.		
14. Estimate finish hardware.		

TASK	LEVEL	DATE
D. TRIMMING THE INTERIORS		
15. Install cylinder lockset.		
16. Install mortise lockset.		
17. Install closer.		
18. Install door plate.		
19. Install flush bolt.		
20. Install baseboards.		
21. Install ceiling molding.		
22. Fill nail holes.		
23. Install cabinet.		
24. Estimate prefabricated cabinet.		
25. Assemble prefabricated cabinet.		
26. Estimate material for built-ins.		
27. Construct built-in cabinet.		
28. Estimate interior paneling.		
29. Estimate closet accessories.		
30. Install shelving.		
31. Estimate acoustical ceiling material.		
32. Install suspended T-grid ceiling.		
33. Install tongue and groove ceiling tiles.		
34. Estimate stairway materials.		
35. Install wood newel post, balusters and railing.		
36. Install metal newel post and railing.		
37. Install medicine cabinet.		
38. Install threshold.		
39. Install panic bar.		
40. Install closet accessories.		
41. Trim and cut laminate joints.		
42. Cut gains for door hinges.		
43. Install disappearing stair unit.		
E. USING EMPLOYABILITY SKILLS		
1. Investigate employment information.		
2. Identify job requirements.		

TASK	LEVEL	DATE
E. USING EMPLOYABILITY SKILLS (continued)		
3. Acquire wage information.		
4. Identify significant non-wage job characteristics.		
5. Explore employment opportunities.		
6. Analyze career ladder.		
7. Identify personal criteria with information about available alternatives.		
8. Prepare a resume.		
9. Write a letter of application.		
10. Complete a job application.		
11. Demonstrate appropriate dress.		
12. Complete a job interview.		
13. Describe personal criteria.		
14. Demonstrate interpersonal skills to achieve successful relationships with others.		
15. Identify source of continuing education for an occupation.		
16. Describe job termination procedures.		

CLASS ACHIEVEMENT RECORD

NAME TASK No.																							

GLOSSARY OF VOCATIONAL TERMS

Advisory Committee. An appointed group of concerned citizens and educators representative of the occupations for which training is given in the local school, organized for the purpose of helping to plan vocational programs and offering counsel on their development and operation.

Apprenticeship. An instructional program in which the learner works directly under a qualified craft worker to learn a trade.

Career Development. A lifelong process involving a series of experiences, decisions, and interactions, which, taken cumulatively, results in the formulation of a viable self concept and provides the means through which that self concept can be implemented both vocationally and avocationally.

Career Education. The total effort of public education and the community to help all individuals become familiar with the values of a work-oriented society, to integrate such values into their personal value systems, and to implement those values into their lives in such a way that work becomes possible, meaningful, and satisfying to each individual.

Career Interest. The student's decision to pursue a job description or cluster within a vocational education program area.

Cluster of Occupations. Occupations for which a common core of instruction can prepare, as for example automotive trades which prepares for such occupations as auto mechanic, auto body repairman, automotive services, auto inspector, and brake adjuster.

Completion. That statistic which describes individuals, including early leavers who have achieved their immediate objectives in preparation for entry or progressing in an occupational field and have left the vocational education program.

Cooperative Vocational Education. An instructional plan which combines learning experiences gained through regularly scheduled supervised employment in the community and vocationally oriented in-school instruction.

Coordinator (Cooperative Education). A member of a local school staff who teaches occupational and related subject content to students preparing for employment and coordinates the efforts of all helpful agencies which can assist in a training program designed to meet the needs of learners in a cooperative vocational education program. At times the coordinator may have varying degrees of responsibility in adult vocational education.

Course. A defined segment of a program.

Course Outline. An outline of subject matter to be presented or learning experiences planned for a course.

Course of Study. A guide prepared by administrators, supervisors, and teachers of a particular school or school system as an aid to teaching a given subject or area of study. More detailed than a course outline and includes statement of methods, materials, and equipment needed.

Curriculum. A sequence of educational and skill development experiences designed to accomplish a particular purpose. The curriculum for a program of vocational/technical education is designed to prepare an individual for entry, promotion, or upgrading in a specific occupation or cluster of occupations. (See definition of Cluster of Occupations.)

Disability. An injury or illness, temporary or permanent, which prevents workers from carrying on their usual occupations. A disability retirement is retirement because of physical inability to perform the job.

Disadvantaged. Disadvantaged persons are those who have academic, socioeconomic, cultural, or other handicaps that prevent them from succeeding in a regular vocational program designed for persons without such handicaps, and who for that reason require specially-designed educational programs and related services, or both, in order for them to benefit from a vocational program.

Discharge. Dismissal of a worker from employment. The term implies discipline for unsatisfactory performance and thus is usually limited to dismissals for such reasons as insubordination, absenteeism, or inefficiency.

Discrimination. Unequal treatment of workers in hiring, employment, pay or conditions of work because of race, national origin, creed, color, sex, age, union memebership activity, or any other characteristics not related to ability or job performance. Discrimination is prohibited by Federal, State, and local laws.

Duty. A large segment of work performed by an individual. It is one of the distinct major activities involved in the work performed, and it is composed of several related tasks.

Employer. General term for any individual, corporation, or other operating group which hires workers. The term "employer" and "management" are often used interchangeably.

Evaluation. A measuring or assessing of effectiveness. An on-going process by which effectiveness and progress are determined, used to guide change and offer directions for program modification and operation.

Exploratory Experiences. Those experiences in a variety of occupations, which help the students identify job traits in relation to their abilities and characteristics, and to assist them in making realistic and appropriate occupational choices.

Follow-Up Report. Usually a composite short-term or long-term report of former students indicating their present employment status or other present commitments (education, military, homemaking). More sophisticated follow-up studies seek to assess the effectiveness of the cooperative training experience to the student's present situation. Individual follow-up information is usually maintained in a student's record file.

Follow-Up Study. A study of the occupational status and progress of former students, as a means of evaluating effectiveness of the school's program of occupational preparation, of improving such preparation, and/or of determining needs of former students for further services.

General Advisory Committee. A committee that advises an institution as to its vocational/technical education activities overall. (See also; Occupational Advisory Committee).

Guidelines. The means by which significant characteristics in the evaluation of an institution or program are identified or measured.

Handicapped. Handicapped persons are those who are mentally-retarded, hard of hearing, deaf, speech-impaired, visually-handicapped, seriously emotionally disturbed, crippled, or other health-impaired persons who, by reason of their handicapping conditions, cannot succeed in a regular vocational or consumer and homemaking education program without special educational assistance, or who require a modified vocational program.

Hazardous Occupation. An occupation designated by State of Michigan and/or federal law to be considered dangerous to the health and well-being of minors.

Individualized Instruction. That type of instruction that provides techniques through which the teacher can work directly with individual students, as opposed to group instruction.

Inservice Teacher Education. All educational, and professional activities contributing to professional competencies which a person engages in after becoming employed, such as: formal course work, work experience, internships, practicums, seminars, and independent-individualized studies.

Internship. Student performs in approved job situation. Usually paid and given credit for the work. In-school instruction usually given before the work period and seldom tied in directly with job experiences. Typically one semester or more. Internship is a term used for collegiate experiences.

Job. The duties and tasks actually performed by a specific individual.

Job Analysis. See: Occupational Analysis.

Job Description. A written statement listing the elements of a particular job or occupation. The statement may include the purpose of the job, duties, equipment used, qualifications, training requirements, physical and mental demands, and working conditions.

Job Placement. Those organized activities performed by a guidance counselor or job placement coordinator designed to assist students in locating employment.

Job Type. A group of jobs that are composed of essentially the same significant duties and tasks.

Learning Resources. All textbooks, reference materials, equipment, supplies and other items and materials needed for successful achievement of learning objectives.

Manpower. People available to perform needed labor.

Management System. A technique employed to provide an organized method of accomplishing stated mission, goals, and objectives.

Minimum Wage. The lowest rate of pay, established by law or through collective bargaining, at which covered workers may be employed. The minimum wage is usually expressed as an hourly rate.

M.O.I.S. Michigan Occupational Information System.

National Occupational Competency Exam. A written and a performance exam developed by the National Occupational Competency Testing Institute, sponsored by T&I Education, for the purpose of determining the degree of competency that one has in a specific trade and industrial occupation.

Occupational Analysis. A technique for finding out what a worker in a specific occupation does and what he needs to know to perform his job efficiently, which is then used as a means of determining the teaching content in an occupational preparatory program.

Occupational Advisory Committee. A committee advising as to a program preparing for a particular occupation or cluster of occupations.

Occupational Competence. Includes technical knowledge and skills; manipulative skills; communication skills; human relations skills; work habits; and the ability to reason, to solve problems, to think independently, and to make judgments necessary for satisfactory employment in the occupation.

Occupational Field. A group of recognized occupations having many similarities, including the following characteristics in common; the type of work performed; the basic aptitudes, and the acquired knowledge and training required; the tools, machines, instruments, and other equipment used; and the basic materials used.

Occupational Objective. An occupational goal, selected by the student, the attainment of which is the purpose for his/her vocational instruction.

On-The-Job Training. Instruction in the performance of a sequentially planned task given a student-learner by the employer during the usual working hours of the occupation. Learning experiences at the training station comprises both the application of the theory of and the technical skill aspects of the learning situation, and/or the proper character, attitude and personality development of the student-learner as general goals of the training situation at the training station.

Occupational Information. Systematically organized data used by guidance personnel and others for the purpose of helping persons make a vocational choice. Material concerns the nature of the work, duties, responsibilities, and compensations involved in the several vocations, including information about employment outlook, promotional opportunities, and entrance requirements.

Occupational Objective. A specific recognized occupational goal, selected by the student, the attainment of which is the purpose of his vocational instruction. Also called: Career Objective.

Placement Coordinator. A person who provides local leadership to plan and initiate placement services.

Placement Services or Placement Activities. A series of coordinated activities for students planning further education or seeking part-time or full-time employment either for additional education, for on-the-job training or for earning a living.

Preparatory Instruction. Instruction preparing students for full or part-time employment. Also serves to prepare students to enter and advance in an occupation. Also serves to equip workers with new or different skills demanded by technological changes.

Preparatory Program. A preparatory program provides vocational instruction designed to prepare individuals for gainful employment as semi-skilled or skilled workers or technicians or semi-professionals in recognized occupations. Preparatory programs are provided in the school laboratory/classroom.

Professional Organizations. Groups of personnel interested in ard working toward the improvement, advancement, and upgrading of activities, not only in their specific field, but also of activities in related fields of endeavor such as the American Vocational Association.

Program (Vocational Education). "Vocational program" means laboratory, simulation or instruction based upon individually designed learning experiences in a vocational subject preparing the student for competencies required in a recognized occupation coded in accordance with the most recent vocational education listing of programs by the United States Department of Education.

Related Vocational Instruction. In-school courses specifically designed to improve personal and social skills, provide needed basic education (remedial), and/or develop relevant occupational skills and knowledges. The course should be regularly scheduled, should complement the learning experiences at the training station, and should be planned and developed to meet the specific needs of the individual student. The content of this course should consist of the theory of the occupational skill, the specific related information, and the general related instruction necessary to achieve personal success in the world of work.

Resources. People, money and materials available to an institution in carrying out its purposes.

School Community. The total community from which the school draws students, support, and resources.

School District. An administrative unit at the local level which exists primarily to operate public schools or to contract for public school services. Normally, taxes can be levied by such units for school purposes. These units may or may not be coterminous with county, city or town boundaries. This term is used synonymously with the term "local basic administrative unit."

Skills. The acquisition of knowledge, ability, proficiency, dexterity and technical expertness that enables one to develop a learned power of doing a thing completely.

State Plan. The document submitted by the state board for vocational education to the U. S. Office of Education describing the state's vocational education program. Includes policies followed by the state in maintaining, extending, and implementing existing programs and establishing new programs to meet the intent of the Vocational Education Acts. Prerequisite for receiving federal funds under the Acts.

Survey, Community. A fact-finding study of socioeconomic conditions and resources, community agencies, industries, business, farming, institutional practices, problems and practices of families, etc., as they exist at a given time in a given community. It is generally used by the school as a guide in revising school offerings to meet local needs.

Survey, Occupational. A form of occupational census, taken by personnel trained to determine the number of qualified employees in a designated occupation in a specified geographic or economic area; and to evaluate the need for increasing or limiting the numbers available for employment in the occupations surveyed.

Task. A unit of worker activity that is intermediate in specificity between a function and a procedural work step or action. It is a discrete unit of work performed by an individual; that is, the unit usually has a definite beginning and ending, and it is performed within a limited period of time.

Task Analysis. A detailed listing of skills necessary to perform a clearly defined, specific job, organized into a logical sequence and which may be used for teaching employment, or classification purposes.

Task Inventory. An instrument used for conducting an occupational survey. It consists of items of identification and background information and a list of appropriate duty and task statements.

Teacher-Coordinator (Cooperative Vocational Education). A member of the local school staff who teaches technical and related subject matter to students preparing for employment and coordinates classroom instruction (related classroom) with learning activities at the training station. The coordinator is also responsible for the evaluation procedures of the program.

Trade and Industrial. Instruction planned to develop basic manipulative skills, safety practices, judgments, technical knowledge, and related occupational information for the purpose of preparing persons for initial employment in the trades and industrial occupations.

Training Agreement. A statement of fundamental agreements regarding the participation of a student in a work environment. Initiated by the school, the agreement reflects a voluntary and cooperative commitment on the part of the coordinator, employer, student, and parents/guardians.

Training Plan. A format for delineating, for each student, the learning experiences and tasks to be undertaken at the training station, often paralleled with classroom units of instruction. The training plan, cooperatively determined, usually becomes a part of the training agreement.

Training Station. The establishment providing learning experience for the student-learner.

VICA. Vocational Industrial Clubs of America. The youth organization for students at secondary and post-secondary levels who are in preparation for employment in trade & industrial occupations.

Vocational Education. Organized educational programs, services, and activities which are directly related to the preparation of individuals for paid or unpaid employment, or for additional preparation for a career requiring other than a baccalaureate or advanced degree.

Vocational Student Organizations. Organizations for student-learners that complement the vocational education program. Recognized student-learner organizations for vocational education are: DECA, Distributive Education Clubs of America; FFA, Future Farmers of America; FHA-HERO, Future Homemakers of America-Home Economics Related Occupations; HOSA, Health Occupations Students of America; OEA, Office Education Association at the post-secondary level in Michigan and BOEC, Business Office Education Clubs at the secondary level; VICA, Vocational Industrial Clubs of America. Organizations for students enrolled in vocational education programs, with national, state and local units, the activities of which are an integral part of the instructional program.

Work Experience and Career Exploration (WECEP). Program emphasizes learning experiences at the training station based on individual needs and provides learning experiences for those students whose needs cannot be served by regular cooperative education programs.

Work Experience Program. Students perform tasks of the actual job and may or may not be paid. Typically engaged in for general education values, including exploratory. Usually one semester or less. Limited school supervision; usually no related class.

Work Observation Program. Student observes work, does not perform tasks except to understand them. Unpaid. Plan is usually few weeks in length and may be tied in with a class in which occupational information is discussed.

Work-Study Program. A federal program designed to provide a vocational education student with employment in the public sector and supplemental income while attending school. The vocational program does not necessarily have to be related to the job.

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